Institutional Strengthening of the Water Sector in Kerala, India

Thesis

Institutional Strengthening of the Water Sector in Kerala, India

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This study is dedicated to my wife Paula Ann De Seta who makes me a better person.

- You are my inspiration, my guiding light -

And in loving memory of my father Franco who was always proud of my achievements, no matter how big or small.

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Abstract

This thesis explains how concerns over water problems in development contexts led me to explore human activity systems, using Kerala Water Authority as a basis for empirical study of water management and governance issues.

This research aimed to find out how water institutions can be strengthened and the role of participatory systemic approaches in organisational development and change initiatives. The main focus relates to the role that management capacity plays in institutional strengthening. Qualitative systems methods are used to frame and interpret the research. The study draws on a range of organisational and systems theories and is informed by analysis of discourses of the processes of organisational learning and the use of systems methods in practice. A project-based inquiry is used to research a synthesis of three interrelated areas: institutional strengthening and capacity building in development situations, water management and governance, and systemic organisational learning methods.

This inquiry explores methods suited to tackling 'complex' or 'messy' organisational problems involving multiple stakeholders. A systemic approach to capacity-building and institutional strengthening is developed from a sustainability perspective that has elements of novelty both in its synthesis of ideas and in its application in the Kerala context. This approach emerged from purposeful participation of stakeholders and was used to trigger enthusiasm for further activity. This work has led to a new appreciation by the Kerala Water Authority of the issues at stake, and has encouraged this organisation to operationalise systemic approaches for future change interventions.

The research reveals the importance of actively involving stakeholders who either seek or would benefit from change initiatives and of appreciating local situated knowledge and value systems within the organisation undergoing development. The study also

reveals the importance of understanding problems from different stakeholder perspectives and of accommodating viewpoints through a process of engagement and debate.

The thesis concludes that the approach developed can offer a potential vehicle for sustainable change in organisational development and behaviour. On the basis of this study a model of the approach is provided and characteristics for a capacity-building initiative that might help strengthen institutions in the water sector are proposed.

Abbreviations and Acronyms

ADB	Asian Development Bank
AL	Action Learning
BPR	Business Process Reengineering
CWRDM	Centre for Water Resources Development and Management
DFID	Department for International Development (UK)
GOI	Government of India
GOK	Government of Kerala
GWP	Global Water Partnership
HRD	Human Resource Development
HSM	Hard Systems Methodology
IT	Information Technology
IWA	International Water Association
IWRM	Integrated Water Resources Management
JBIC	Japanese Bank for International Cooperation
KPI	Key Performance Indicator
KRWSA	Kerala Rural Water and Sanitation Agency
KSCSTE	Kerala State Council for Science, Technology and Environment
KSWRC	Kerala State Water Resources Council
KWA	Kerala Water Authority
KWSP	Kerala Water Supply Project
lpcd	Litres *per capita* per day
MCM	Million Cubic Metres
MDG	Millennium Development Goal
MLD	Million litres per day
MOWR	Ministry of Water Resources
MS	Management Science
NGO	Non-Governmental Organisation
NRW	Non-Revenue Water
OD	Organisational Development
OR	Operations Research
O&M	Operation and Maintenance
PEST	Political, Economic, Social, and Technological
PLA	Participatory Learning and Action
PPP	Public Private Partnership
RA	Rapid Appraisal

RGNDWM	Rajiv Gandhi National Drinking Water Mission
RRA	Rapid Rural Appraisal
SEU	Socio-Economic Unit
SLA	Service Level Agreement
SLIM	Social Learning for Integrated Management and Sustainable Use of Water at Catchment Scale
SSM	Soft Systems Methodology
SST	Soft Systems Thinking
ST	Systems Thinking
SWOT	Strengths, Weaknesses, Opportunities, Threats
TOR	Terms of Reference
TQM	Total Quality Management
UFW	Unaccounted For Water
ULB	Urban Local Body
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNICEF	United Nations International Children's Emergency Fund
USAID	United States Agency for International Development
WEDC	Water Engineering & Development Centre (Loughborough University, UK)
WHO	World Health Organisation
WQAA	Water Quality Assessment Authority
WRI	World Resources Institute
WWC	World Water Council

CHAPTER I - INTRODUCTION

I.1. Problem Statement

Water is essential for the development and sustenance of all communities and the need for effective and efficient management of water has emerged as an urgent issue in many parts of the world (Global Water Partnership, 2000a; Shiva *et al,* 2002; Pitman, 2002; World Water Council, 2003). Realisation of its scarcity as a resource is leading to water management regimes that aim to strike a balance between water use as a basis for livelihood, and its protection, to help ensure sustainability for future generations (United Nations Environment Programme, 2003; World Resources Institute, 2003; Lockwood, 2004; Postel, 2008).

India is no exception to this emergent trend, but is facing a number of problems. These relate to:

1. A need to meet the growing demand for water in a sustainable way (Snellen, 2004; Government of Kerala, 2008a; Government of India, 2008a).
2. A continued focus on supply-side management as opposed to management of demand, despite evidence showing that demand-responsive approaches can be successful in meeting increased demands for water (Gleick, 2003; Shiva, 2005a; Government of India, 2009; Government of Kerala, 2012).
3. An apparent lack of management capacity to engage with new approaches that appear to have some potential to deal with the problems at stake (Chapman, 2002; Asian Development Bank, 2003; Bunch, 2003; SLIM, 2004a; Nidumolu *et al,* 2006; International Institute for Environment and Development 2011).

These issues are briefly elaborated below.

First and foremost, in terms of sustainability, how best to make the most appropriate and efficient use of water resources is one of the most critical issues facing India. Past approaches have been to develop water resources (supply-side development involving huge capital expenditure on schemes - such as building new dams or raising existing ones, diverting rivers, building canals, water transfers within and across States, etc. (Alam, 2003; Iyer, 2003; Jayaraman, 2003; Pahuja, 2003)) rather than to manage existing resources more efficiently. State ownership of water continues to cause problems in shared river basins which have precluded optimal water development and management (Ohlsson, 1995; Kumar, 2001; Jain, 2001; Shiva, 2002). There has been a lack of political will at both central and regional government level to tackle the hard financial, administrative, institutional, political and cultural constraints that need to be addressed in order to effect better management of water demand (Government of Kerala, 2002; Government of India, 2002; 2003). As a result, the uneven distribution of India's water resources amongst competing demands and stakeholders has not improved in recent years (Polidano, 1999a, 2001; Bigg, 2002; Narain, 2002; Government of India, 2008a). Sustained population growth continues to lead to growing demands for water resources, while the increasing contamination of surface water and groundwater resources together with long periods of drought and short monsoons (short periods of heavy rain, where most of the water is lost through run-off), reduces the quantities of water available. This is a phenomenon experienced in most States across India, including Kerala (World Resources Institute, 2003; Government of India, 2009). Kerala faces similar challenges to the rest of the country in the management of water resources and despite an exemplary record in some development areas, such as low child mortality, high quality of education and literacy, compared to the rest of India (United Nations Development Programme, 2003a; Government of

Kerala, 2008a; World Health Organisation, 2008) Kerala struggles in the water/wastewater arena. Despite calls for reform, Kerala has been slow to take up these challenges (Government of India, 2003; Pushpangadan, 2003).

Secondly, whilst there is growing evidence that demand-responsive approaches, including community mobilisation, is taking a foothold, scaling up is a problem (Government of Kerala, 2002; Chackacherry, 2003; Lockwood, 2004; Shiva *et al*, 2004). One of the water-related challenges presented by the United Nations 'Millennium Development Goals' (MDG) is "to reduce by half the proportion of people without sustainable access to safe water" by 2015. India seems unlikely to meet this target (Kothari, 2002; Narain, 2002; Gleick, 2003; Government of India, 2008b; 2009). Progress has been slow, even though almost three decades of experience within India and elsewhere in participatory approaches, decentralisation, cost sharing, and technological adaptation means that donors, NGOs and national governments have all the evidence they need that demand-driven, community-led approaches deliver better results than the supply-driven government-led models that still prevail (World Water Council, 2000; Government of India, 2002, 2008a; United Nations, 2009; World Bank, 2010). As Lockwood (2004) observes, the task ahead is still daunting "...knowing the right way forward is one thing, but achieving the rate of progress needed is another. The MDG translates into a target of 280,000 new water users every day for 12 years" (*ibid.*, p1). For India this equates to 80,000 new water users every day for the next 5 years (United Nations Development Programme, 2003a; Government of India, 2008a; Grail Research, 2009). Achieving *sustainable* improvements appears to be particularly problematic. The 'Kerala Rural Water & Sanitation Agency' (KRWSA) has worked alongside Kerala Water Authority (KWA) to improve supply coverage, but the most distinguishing factor amongst most of the schemes undertaken is the lack of

sustainability (deteriorating assets, poor water quality, and short supply hours) once support is withdrawn (Chackacherry, 1993; Paramasivan, 2000).

Thirdly, India has made little progress to reform its water sector institutions and, though there has been active debate on water policy for many years, translating policy into action, and action into results, remains a problem. Accountability is often missing and approaches have been top-down, bureaucratic and fragmented, rather than participatory, customer-oriented and integrated (Government of India, 2003; Chackacherry, 2003). Users and beneficiaries feel excluded from decision making and have no incentive to participate and improve service delivery (Government of India, 2002; Shiva *et al,* 2004), while there are negligible incentives for government agencies to deliver adequate or quality services (Shiva, 2002; Kothari, 2002; Rajamani, 2002). This situation creates a cycle of poor service, reluctance to pay and insufficient income for operation and maintenance (O&M) of infrastructure, which further reduces services. These are management problems, but it is clearly evident that management and business principles from the Western world cannot be readily applied without considerable tailoring to local needs (Mentz, 1997; Chapman, 2002; Singh, 2003; Asian Development Bank, 2006; Global Water Intelligence, 2010).

The research described in this thesis addresses the above problem situation in theoretical, methodological and practical terms, and to this end has aimed to find out what notion of *capacity building* tailored to local needs can contribute to improving individual and organisational performance (see section III.2.1 for the conceptual grounding of this process). For purposes of my inquiries, I refer to capacity building as activities which can strengthen the knowledge, abilities, skills and behaviour of individuals. I base this on insights I have gained from literature (Abrams, 1997; United

Nations Development Programme, 2003a; Asian Development Bank, 2003; Greif, 2006).

I.2. Motivation for Research

I have worked in the water sector as a practitioner and consultant for 22 years on institutional strengthening and organisational change initiatives. Prior to this, I was a water engineer for 10 years, working for a number of different water utilities. My practical experience has provided me with a sound basis from which to appreciate the interconnectedness of the issues at stake from a number of perspectives, having worked with stakeholders at many levels, especially within India. Whilst the projects on which I had worked prior to working in Kerala provided various benefits to stakeholders, I could see that more could be achieved, but this would require a different approach to engaging stakeholders from that which prevailed. This research was therefore motivated by a perceived need to assist organisations to become more successful in achieving sustainable change in performance and behaviour. This motivation was driven by the notion that organisational change which involves shared understanding about what is to be achieved from a socio-technical perspective would seem to be able to contribute positively to changes in attitudes and behaviour (Mumford, 1983; Vidgen, 2002; Baxter & Sommerville, 2008).

In 2004 I started a consultancy project to provide Kerala Water Authority (responsible for water and wastewater services for the entire State of Kerala, India) with development assistance that could help the organisation become more effective over time. Having previously worked on a number of similar projects, it was evident to me that without active involvement and ownership of the change process by the organisation, the consultancy effort would not deliver the expected results from a sustainability perspective. As I had already worked with KWA for a year (prior to

commencing my research) and had already begun to generate some enthusiasm for change (evidenced through KWA's acceptance to embark on a major change management programme prompted by my consultancy work – see section II.4), I was keen to explore ways of building active involvement and ownership of change processes with the organisation that could help it deliver sustainable results beyond the life of the project. According to KWA, previous interventions by other consultants lacked ownership and had apparently failed to deliver lasting results. Having been party to such (*failed*) interventions in the past (in India, Jamaica and Pakistan), I was keen to engage KWA with an initiative that could potentially help the organisation to help itself and build capacity to make improvements that could pass the test of time. In this regard, my motivation was driven by what I understood as multi-dimensional sustainability considerations, i.e., that resulting improvements in individual and organisational performance from a successful intervention could potentially have a positive impact on services, whilst acknowledging the interconnected social, economic and ecological dimensions (Global Water Partnership, 2000b; Shiva, 2002; Postel, 2008). With a further 3 years to run on the project, this presented the ideal opportunity to engage with KWA on a new research initiative that extended beyond the consultancy project.

I.3. The Nature of the Research Opportunity

The opportunity for this PhD research emerged from my existing work in the following way. My initial task as a consultant was to provide institutional strengthening support through investigating existing performance, practices, business norms, etc., and to suggest ways to improve organisational effectiveness. In other words, my role was to suggest organisational changes that could be brought to bear in the organisation that would be practicable and achievable in the local context.

As this was not the first time that this type of study had been done for KWA, my first task was to examine previous consultancy studies (Price Waterhouse, 1994; North West Water, 1997; Government of Kerala, 2002), with a view to subsequently comparing the results with my own findings. The previous interventions were similar in scope to each other and provided technical assistance related to the various institutional development needs of the organisation. Each of the previous studies had identified a number of problems and prescribed solutions to 'fix' them, most of which appeared to be feasible. It appeared that the changes being suggested by the consulting companies were a response to perceived organizational problems identified by the consultant and not by the organisation itself. The consultants had identified problems that they perceived to be rooted in the culture of the organisation, this being influenced by the wider societal culture. Therefore, elements of the traditional culture, value systems and institutional norms (e.g. poor work ethics, inflexible work practices, low productivity, centralised decision making, and hierarchical management structures) were seen as barriers to organisational effectiveness. This, according to the consultants, had led to organisational inefficiencies. Generally, these problems appeared to be manifest in the form of corruption, employment and promotion based on political affiliation, nepotism and patronage, lack of accountability, inadequate job descriptions, an authoritarian organisation and leadership structure, and a lack of motivation. To rectify these problems, previous consultants had proposed bureaucratic solutions to make the organisation more efficient and more rational (Polidano, 1999b, 2001; Stacey 2001; Sumner, 2003). It was suggested by the consultants that through greater emphasis on formalisation, rationalisation, promotions based on achievement criteria, impersonal authority relationships and more participative approaches to decision making, the organisation would be more effective and efficient in achieving its stated objectives.

The previous studies appeared to me to have a common factor: a lack of appreciation of cross-cultural behaviour, and in some cases, the imposition of Western management approaches (Ralston *et al,* 1997). This observation is supported by experiences elsewhere, discussed in the literature review in Chapter III.

Based on the foregoing and building on cross-cultural management and organisational practices, or 'crossvergence' as suggested by Ralston *et al* (1993), as a consultant I wanted instead to devise an intervention that was participative, inclusive and supportive of the idea that the inherent skills and culture within the organisation could be used to effect sustainable improvements. The feasibility of such an intervention was supported by findings from literature (Taylor, 1996; Seppa¨la¨, 2002; Ongaro, 2004; Colvin *et al*, 2008, see Chapter III.2.1) and my own previous experiences. The main opportunity for research to be carried out in parallel to my consultancy task was in the design and trialling of this intervention and conducting some related inquiries while working with KWA in developing the organisation. Development applies in this context in the sense that KWA could become more effective over time at achieving its goals, although that would require a new approach to tackling the complexities within the organisation.

I.4. Bounding the Research Scope

I.4.1. Exploring Issues, Focus and Boundaries

This research set-out to explore how water institutions can be strengthened, and the role of participatory systemic approaches in organisational development and change initiatives. The main focus of my research relates to the role that management capacity plays in institutional strengthening. My inquiries explore the relationship between management capacity and the organization's ability to meet increasing demands for services whilst at the same time having to consider sustainability for future generations.

This research explores the synthesis of three interrelated areas of praxis: 'institutional strengthening and capacity building in development situations', 'water management and governance', and 'systemic organisational learning'. This synthesis of ideas was chosen because each plays a vital role in better understanding and thus answering the questions posed by this research (see section I.4.2). These interrelated areas are described in Chapters II and III. Combining the three areas was intended to enable exploration of the linkages between internal constraints (problems and deficiencies within the organisation), the effects of the external environment (pressures imposed on the organisation from outside actors and influences) and the need for solutions that are practicable and workable in the development context (see section III.3). Practicability in this sense refers to the feasibility of operationalising solutions in the local context (see section VI.3.1). 'Development' is not confined to a particular geographical area but is happening everywhere at local and global levels. For purposes of my inquiries, I define 'development context' as "development of management and organisational capacity of institutions within developing economies, including cultural, social, political, and economic aspects". I base this definition on insights I have gained from literature (Purnomo *et al*, 2004; Nidumolu *et al*, 2006; Joshi & Huirem, 2009).

Due to the enormity of the subject matter and the time constraints imposed on this research project, it was necessary for me to narrow my field of inquiry. The following two figures are provided to illustrate the main areas of inquiry in relation to KWA, Kerala, and the wider water debate (discussed in Chapter II). Figure 1, drawn from both my direct experience and literature review, identifies a number of dimensions within the Kerala water sector which can potentially impact the delivery of water services within KWA. From a systems perspective, this illustrates the effect of the wider (external) environment on the ability of KWA to deliver its services within its own

organisational (internal) environment. The six areas depicted in Figure 1 are inextricably linked in terms of the wider issues at stake; however, it has not been possible to study all of them. This research has concentrated on some of the issues of water management (the sphere shown at the bottom of Figure 1) experienced by staff within KWA, and explores approaches that could potentially help the organisation think differently about the issues at stake and how they might go about tackling them, leading to more positive outcomes than in the past.

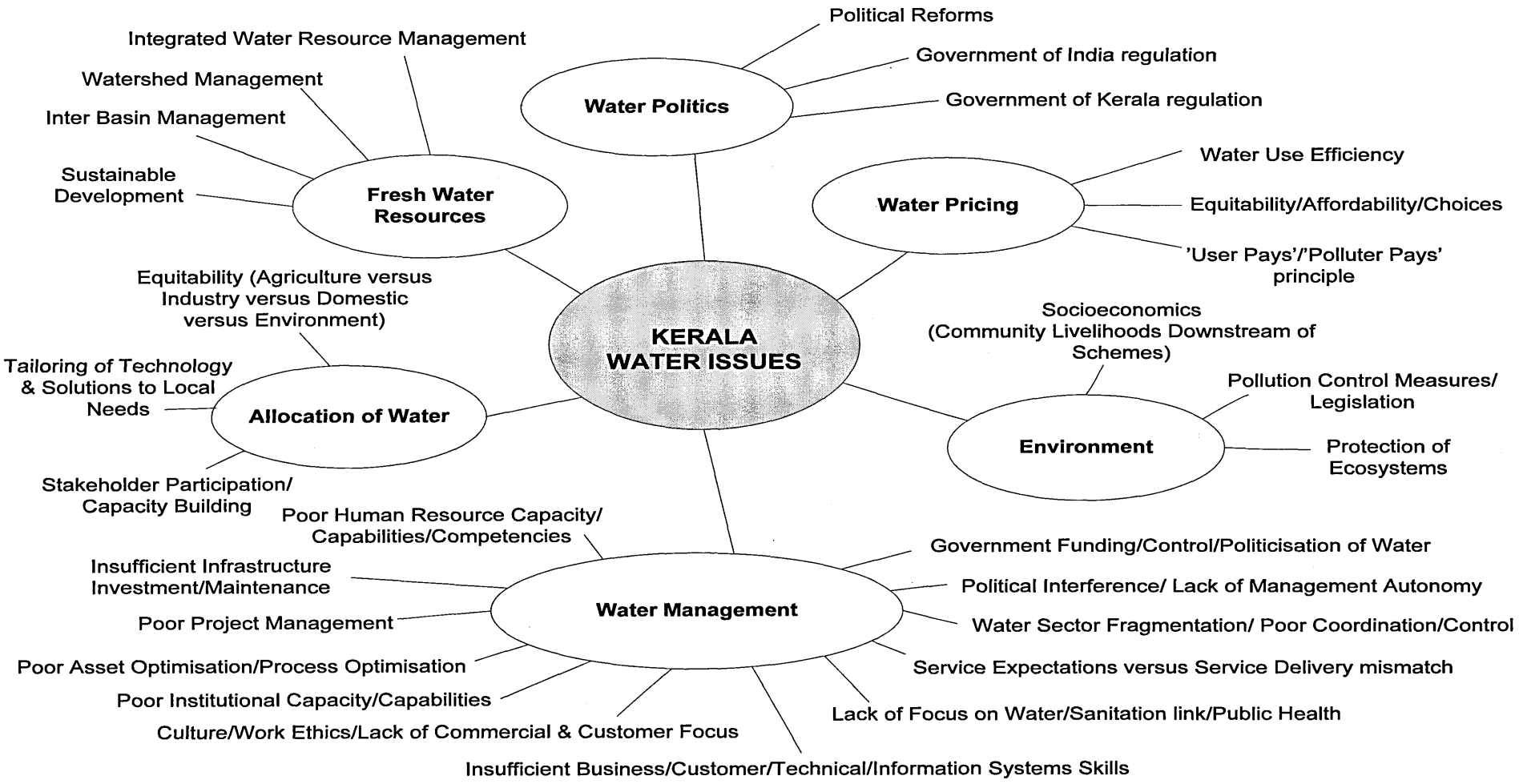

Figure 1 A spray diagram showing some of the dimensions of 'local' water issues in Kerala

Source: this thesis

Building further on the water and management issues shown in Figure 1, Figure 2 (below) depicts the water and management issues that are particularly relevant in Kerala, and locates these within the broader 'world water debate'. It identifies some of the wider water and management dimensions that might have an impact on KWA in terms of organisational development within the local context (internal dimensions); and highlights the pressures - both constraints and 'boosting factors' (external dimensions) - brought to bear on the organisation from the wider debate on water issues. In terms of organisation development, my inquiry has explored some of the issues described within the lower sphere shown at the bottom of Figure 2.

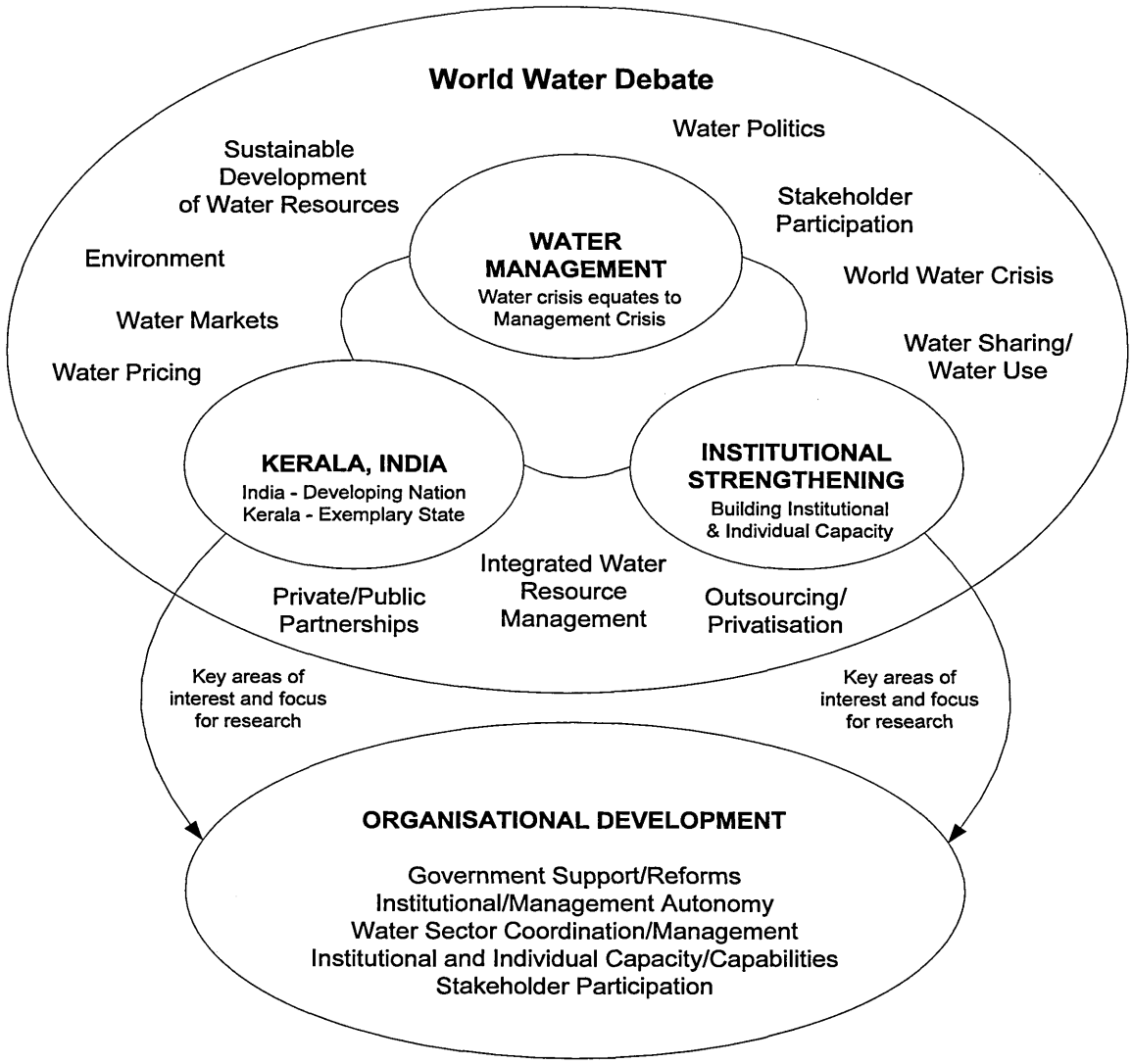

Figure 2 Influences that led to my choice of research focus

Source: this thesis

Based on the key dimensions of local water and management issues depicted above, the key issues my research inquiry explored as starting points were:

- Management and governance issues related to drinking water supply in Kerala
- Organisational and managerial aspects of drinking water supply institutions in general, bearing in mind KWA and the Kerala Water Supply Project (KWSP)
- Using the experience gained from the research effort to help KWA become more successful in achieving sustainable change in organisational performance and behaviour

Another key starting point was in the use of participatory and systems approaches. The nature of the research opportunity described earlier, and the need to 'frame' the research scope, arose because the organisation being studied was experienced by many as 'complex' or 'messy' in nature, having multiple stakeholder influences within and outside of the organisation (see sections II.3.2 and II.4.2). These influences were manifest in the way people within the organisation behaved and reacted to changes to the organisational environment. My observations of these influences within KWA were in keeping with the findings of other researchers (e.g. Ackoff, 1974; Cummings *et al*, 2009; Anaeto, 2010) in that in order for KWA to remain relevant (evolve) it would need to continually adapt to its changing environment (see Figure 13, section III.3.3). Combining participatory approaches that are also intended to be systemic stresses the importance of taking local people's perspectives into account, hence their suitability for exploring the kinds of issues characterised in my research context as interconnected, complex and involving multi-stakeholder perspectives (Checkland & Poulter, 2006, 2010; Bosch *et al*, 2007; Bell & Morse, 2010; Ramı´rez *et al,* 2012). Also, drawing on the experiences of the organisation with previous interventions that appeared to lack active involvement of stakeholders, there appeared to be a need to build on the knowledge and understanding of those within the organisation and not just transfer the knowledge of external consultants. I was aware that

researchers and practitioners from various traditions of participatory and systems approaches had made claims that these approaches were particularly suitable to this kind of context (discussed further in Chapter III). Therefore, working with Kerala Water Authority, this research aimed to find out whether a participatory approach could be successful in bringing about change where previous non-participatory interventions had failed. My overall approach and method of investigation for this research is detailed in Chapter IV.

I.4.2. Research Questions

Based on the foregoing, the following overarching research question was developed to direct the research in order to understand how Kerala Water Authority could improve water management and governance from a systemic perspective:

> *In the Kerala context, what are the characteristics of a capacity-building initiative that might help strengthen institutions in the water sector?*

This central research question is underpinned by the following questions:

- Within Kerala Water Authority, how might a capacity-building approach be developed and used to build knowledge, abilities and skills, and in doing so, facilitate a positive change in attitude and behaviour at both organisational and individual levels? What role, if any, might such an approach have in generating enthusiasm for change and ownership of change processes?
- Can the introduction of a systemic approach in the Kerala context lead to improvements in organisational and institutional effectiveness where previous systematic (mechanistic) interventions failed to deliver lasting results?

These questions are addressed in section VII.2.

I.5. Report Structure

Chapter I has provided the introductory aspects, described briefly the nature of the research, and outlined the scope and some of the general principles of the research approach. It also described the aims and motivation that led to conducting this research and posed the research questions which are explored in later chapters. There are six further chapters. Chapter II provides the main contextualisation of the research in terms of water, Kerala and the Kerala Water Supply Project, which was used as the basis for the empirical study. Chapter III provides the theoretical basis on which the research has been devised and provides a review of relevant literature. Chapter IV describes the methodological approach taken and examines the merits of using participatory and systemic methods to improve public sector water management performance in the Kerala context through generating enthusiasm for change. Chapter V describes the field-work carried out in terms of designing and implementing a change management programme and describes my workshop-based inquiry which combined approaches that were both participatory and systemic. Chapter V also details the outcomes of the individual workshops and describes aspects of the research that were novel to KWA. Chapter VI presents the overall findings of the research, including a description of the principles of a new approach to capacity-building and organisational development that resulted from the research effort. The final chapter (Chapter VII) analyses and discusses the research outcomes and their significance in relation to the research questions and the various theories and practices discussed in Chapters II and III. Reflections on the research methodology and the role of researcher and facilitator are included, highlighting points that appear to have potential for future application in other research contexts. Conclusions and recommendations for further work are also presented in the final chapter.

CHAPTER II - CONTEXTUALISATION OF THE RESEARCH

II.1. Introduction

This chapter explores three contexts of the research: water issues generally, the Kerala and national context and the background to the Kerala Water Supply Project and my engagement with it.

II.2. The Context of Water

This section provides a broad overview of water resources, followed by governance and water management aspects relevant to the Kerala context.

II.2.1. Water Resources

"On our blue planet, water is life. No water. No life" (Abu-Zeid, 2003, piv). A simple statement of fact, but could the lack of availability of water ever become such an issue, that it brings life on Earth into question?

Whilst the total quantity of water on the planet is vast, the quality and availability of water for human consumption is a growing problem. Increasing pollution from agriculture, industry, human waste and storm water, is diminishing the availability of usable resources, and where demand outstrips supply (where the quantity extracted is greater than the rate of natural replenishment), resources are depleted further (Gleick, 1999; Jayaraman, 2003; United Nations Environment Programme, 2003). So, whilst water covers three-quarters of our planet and is by far our most abundant natural resource, human societies are, somewhat paradoxically, facing one of the most pressing problems of survival: by 2025,

two-thirds of the world population will be living in conditions of 'water stress'[1]. The problem this highlights is captured in the notion of 'water availability'. Around 97.4% of the world's water is salt water, and most of the remainder is tied up in glaciers, the polar caps, or otherwise inaccessible to human beings. Consequently, less than 1% is readily available in the form of lakes, rivers and aquifers - the main sources for drinking water (World Water Council, 2000; United Nations Environment Programme, 2003).

The world population is expanding at an alarming rate. During the past century the population has tripled. During the same period, the demand for water has increased at twice the rate of population growth. This has put enormous stress on the world's water and therefore, the quantity and availability of water is likely to continue to be one of the main preoccupations of the human race as undoubtedly it has been for thousands of years (Postel *et al,* 1996; Postel & Wolf, 2001; World Resources Institute, 2003).

Wholesome drinking water is an absolute precondition of life, yet it seems that access to it for sustainability of life itself cannot be taken for granted. Over a decade ago, it was estimated that more than 1.1 billion people lacked access to safe drinking water, and more than 2.4 billion lacked access to adequate sanitation (Gleick, 1999). At that time, Gleick suggested that humankind's insatiable need for water, combined with an ever-expanding world population, was threatening the all-important water cycle, and estimated that over a 15-year period (from 1999 to 2014), there would be between 34 and 118 million water-related deaths, depending on the rate the world set about addressing water problems (Gleick, 2003). Around the same time, the World Health Organisation was reporting more than 2 million deaths each year, related to water-borne diseases (World Health

[1] The United Nations Water Conference at Mar del Plata, Argentina, in 1977 saw the first serious intergovernmental attempt to address the global water crisis. According to the United Nations' definition of renewable water resources - "where water available per person per year is less than 1,000 cubic meters, people are said to be living in a state of 'water scarcity'; where water available per person per year is less than 2,000 cubic meters, people are said to be living in a state of 'water stress'". Source: United Nations Environment Programme, 2002b

Organisation, 2000), making water one of the most urgent unresolved problems of the 21st century.

Whilst some progress has been made in recent years on improving access to safe water sources, access to improved sanitation has declined. Figures published in 2010 (World Health Organisation / United Nations International Children's Emergency Fund, 2010) suggest that with less than 5 years to go to meet the Millennium Development Goals, 884 million people in the world do not have access to safe drinking water, and 2.6 billion people do not have access to adequate sanitation. This has led to more than 1.4 million children dying every year from diarrhoea caused by unclean water and poor sanitation. This equates to nearly 4,000 child deaths a day or one child every 20 seconds (World Health Organisation, 2008; World Health Organisation / United Nations International Children's Emergency Fund, 2010).

With regards to India, little improvement has been made in the water and sanitation sector over the past several years, with 15% of the population still having no access to improved water sources, and 48% having no access to improved sanitation (Government of India, 2009). This adds weight to the many arguments put forward (for example by Ohlsson, 1995; Global Water Partnership, 2000a; Shiva, 2002; Shiva *et al,* 2002, Shiva *et al*, 2004; Shiva, 2005a;) that government (market-led) efforts to solve the water crisis have failed, and have ignored the rights of communities to collective water rights and management. "When development philosophy erodes community control and instead promotes technologies that violate the water cycle, scarcity is inevitable" (Shiva, 2002, p12). Shiva argues that "the water crisis is an ecological crisis with commercial causes but no market solutions. Market solutions destroy the earth and aggravate inequality. The solution to an ecological crisis is ecological, and the solution for injustice is democracy. Ending the water crisis requires rejuvenating ecological democracy" (Shiva, 2002, p15). Lack of access to safe water is therefore likely to continue to be the biggest threat to humanity,

unless there is a step change in the way that governments in India and around the world address the links between water and human survival.

Water problems in India over the past two or three decades have been exacerbated by massive urbanisation, a large geographically-spread rural population, and State ownership of water that has induced a race to secure water available to them within shared river basins, rather than taking an integrated approach to water allocation and sustainable management of resources (Jayaraman, 2003; Government of India, 2008b, 2009). The current population of India is well in excess of 1.2 billion (Government of India, 2012), and growing at a fast pace. The population is making huge claims on resources, not least water. This has created a recent policy shift in diverting a larger slice of water away from irrigation, towards drinking water purposes (Government of India, 2003).

II.2.2. Management and Governance of Water Resources

There is a clear link between water and human survival. Therefore, ensuring its availability, in a fair and equitable manner in order to meet sociological and ecological needs, places a number of responsibilities on institutions tasked with its management and protection. One of the significant challenges for governments is to find out how to 'capture' water resources for human needs whilst ensuring that ecological balances are also maintained. Not only the natural availability of water, but the way in which 'human management systems' allocate water to various stakeholders, determines how much water societies use, and how. With at least 71% of the world's available freshwater being used for agriculture (92% for India), sustainable practices and institutions equipped with capable and competent managers, are crucial and pressing needs (World Resources Institute, 2003). Other important aspects that impact the water cycle include issues related to the environment, ecology, socio-economics, demographics and climate change, to name a few.

In 1975, water scarcity was limited to a small number of countries in North Africa, Europe and the Middle-East. By 2000, water scarcity had spread to much of Asia. With India already under conditions of water stress, along with China (Figure 3), India will continue to be amongst the largest and most densely-populated countries facing increased water scarcity in the future (Postel & Wolf, 2001). "For Third World women, water scarcity means travelling long distances in search of water. For peasants, it means starvation and destitution.....for children, it means dehydration and death" (Shiva 2002, p15).

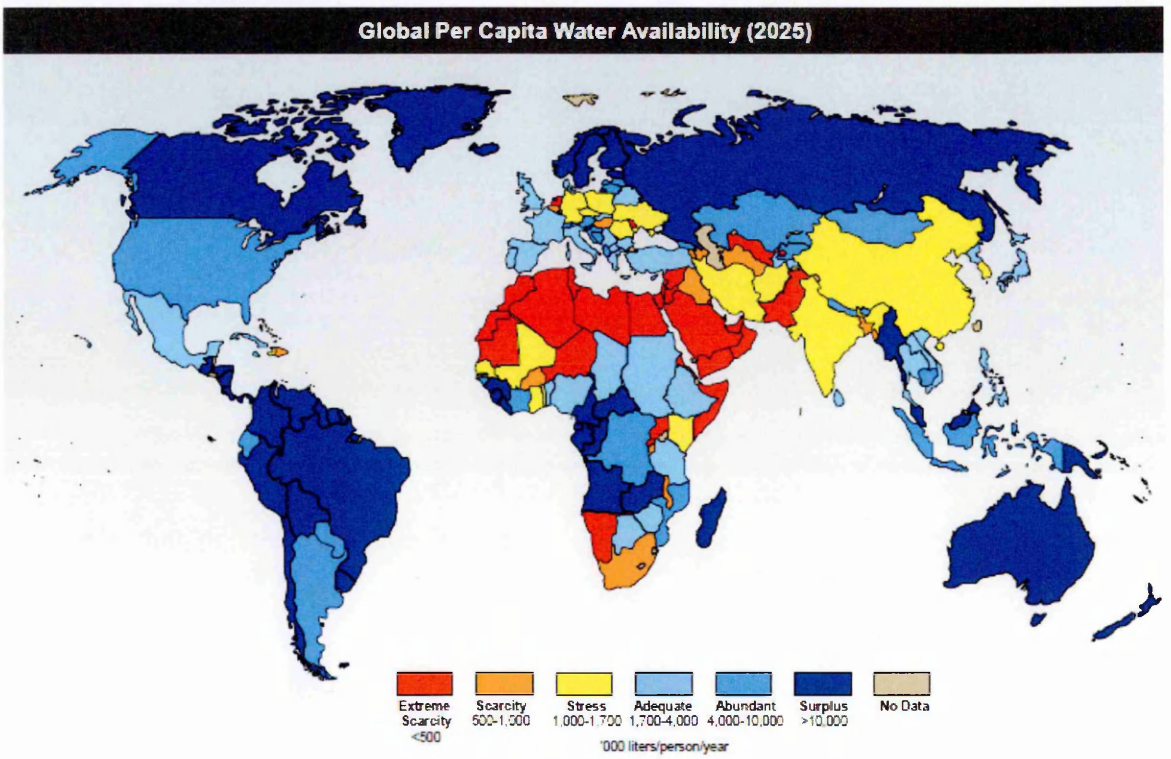

Figure 3 Water scarcity map

Source: Global Water Initiative (June 2005), GEF International Waters Conference (taken from presentation slides prepared by Grail Research, LLC, India 2009).

Water scarcity is a serious problem for India, which traditionally has been well-endowed with freshwater reserves, but the increasing population and over-exploitation of surface and groundwater over the past few decades have resulted in water scarcity in most regions. According to recent research (Grail Research, 2009) this trend is likely to get worse. India's population is predicted to increase to 1.66 billion by 2050 (up from 1.13 billion in

2005). This will put increasing demands on already-depleted water resources. Also, as a consequence of increased water consumption, wastewater volumes are increasing, and in the absence of proper disposal methods, existing freshwater reserves are being polluted (*ibid.,* 2009). Further exacerbating the problems of water scarcity, is India's fast-growing economy, which is resulting in increased urbanisation. By 2050, it is expected that 64% of the population (up from 29% in 2009) will be living in urban areas. This is driving an increase in *per capita* water consumption in towns and cities. Urbanisation is also driving a change in consumption patterns, and increased demand for industrial products such as washing machines, and water-intensive agricultural crops with demand expected to grow by 80% by 2050 (Centre for Environmental Systems Research, 2009).

Key Dimensions of Water Issues, Institutions and Political Settings

The growing conflict between alternative water uses is a serious problem, as is the state of the environment and health problems resulting from poor water supplies and sanitation; these are central to social welfare and sustainability. Effective and equitable management of water resources, therefore, can have a significant effect on social and economic development. Shiva (2002) talks about two conflicting paradigms for explaining the water crisis in India; the market paradigm and the ecological paradigm. She argues that "market assumptions are blind to the ecological limits set by the water cycle and economic limits set by poverty", and suggests the market paradigm, which views water scarcity as a crisis resulting from the absence of water trade, misses the most crucial point – "when water disappears, there is no alternative" (*ibid.*, p14).

The water crisis has been called a 'crisis in management' by some commentators (Ohlsson, 1995; Cosgrove, 2000; World Water Council, 2003). Beyond problems of physical availability, the management of water resources, and its protection and distribution, also present significant challenges.

There are many facets to managing water in a fair, sustainable and responsible way, whether it is by country, region or the world as a whole. As background to this research, a number of key interrelated areas were considered (Figure 4).

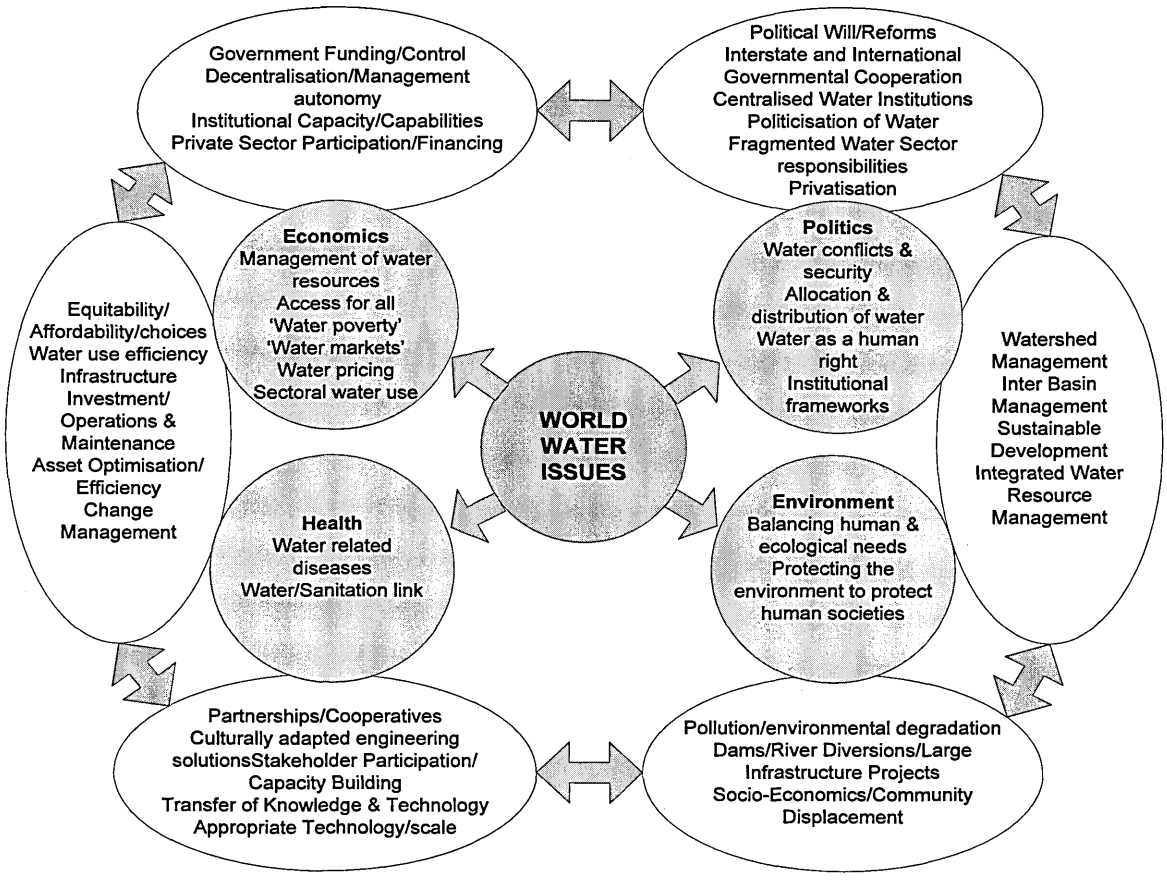

Figure 4 World Water - key dimensions of global water issues

Source: this thesis

Figure 4 shows the links between political, economic, health and environmental fields, and highlights some of the key dimensions of global water issues related to each. I devised this Figure to help bound my research interests. By considering some of the global aspects of water issues it was evident to me that while some were of relevance and importance within the Kerala context, the nature of the interconnectedness between the dimensions depicted is as relevant as the issues themselves. It is therefore important not to take single issues out of context. The Figure illustrates the importance of taking an integrated or holistic approach to water resource management, and the notion that a lack of focus in one area will impact on this 'world water system' as a whole.

The Supply - Demand Dilemma

For centuries, access to freshwater sources has determined the location of human settlements, and the rate of expansion of communities has been determined by their ability to harness and transport water (United Nations, 2009). Based on my 22 years of experience of working in the water sector internationally it appears that most people in industrialised countries take access to drinking water for granted, unaware of the complexities of modern engineering involved in supplying our daily needs. For millions of people in developing communities, however, the drudgery of fetching and carrying water remains their only choice (Asian Development Bank, 2006; World Bank, 2010). But economic development, often resulting from increased access to fresh-water sources, generates its own set of problems. For example, rapidly declining surface and groundwater quality, due to over-abstraction or pollution, in many major urban centres in the developing world threatens human health (World Health Organisation / United Nations International Children's Emergency Fund, 2010). One possible solution would be to invest in new infrastructure (e.g. new boreholes further afield, and wastewater treatment plants). However, on the basis of my own experience, the ability of water institutions to make this investment is often hampered by poor revenue generation from existing infrastructure, resulting in insufficient funds being available. This situation in turn compromises water institutions' ability to fulfil their obligations in providing effective services. One of the significant challenges facing water institutions in the developing world is therefore to find ways of addressing this supply/demand scenario.

The construction, maintenance and operation of water and wastewater systems involve huge costs, and how best to share these costs equitably amongst those who benefit from them is another dilemma facing water institutions. The cost of services must be covered either by users through water charges, by direct government subsidies (from taxpayers), or a combination of the two. Ultimately, someone has to pay; otherwise systems will fall into

disrepair. Herein lies another dilemma for the developing world: water is often used for political leverage, especially amongst the less affluent of society; this means governments are heavily burdened by the need for subsidies whilst users perceive water to be of low monetary value. This can lead to wasteful practice, thus perpetuating the problem of availability. These apparent 'conflicts' in the supply/demand scenario are shown in the 'multiple cause diagram' (Figure 5), below.

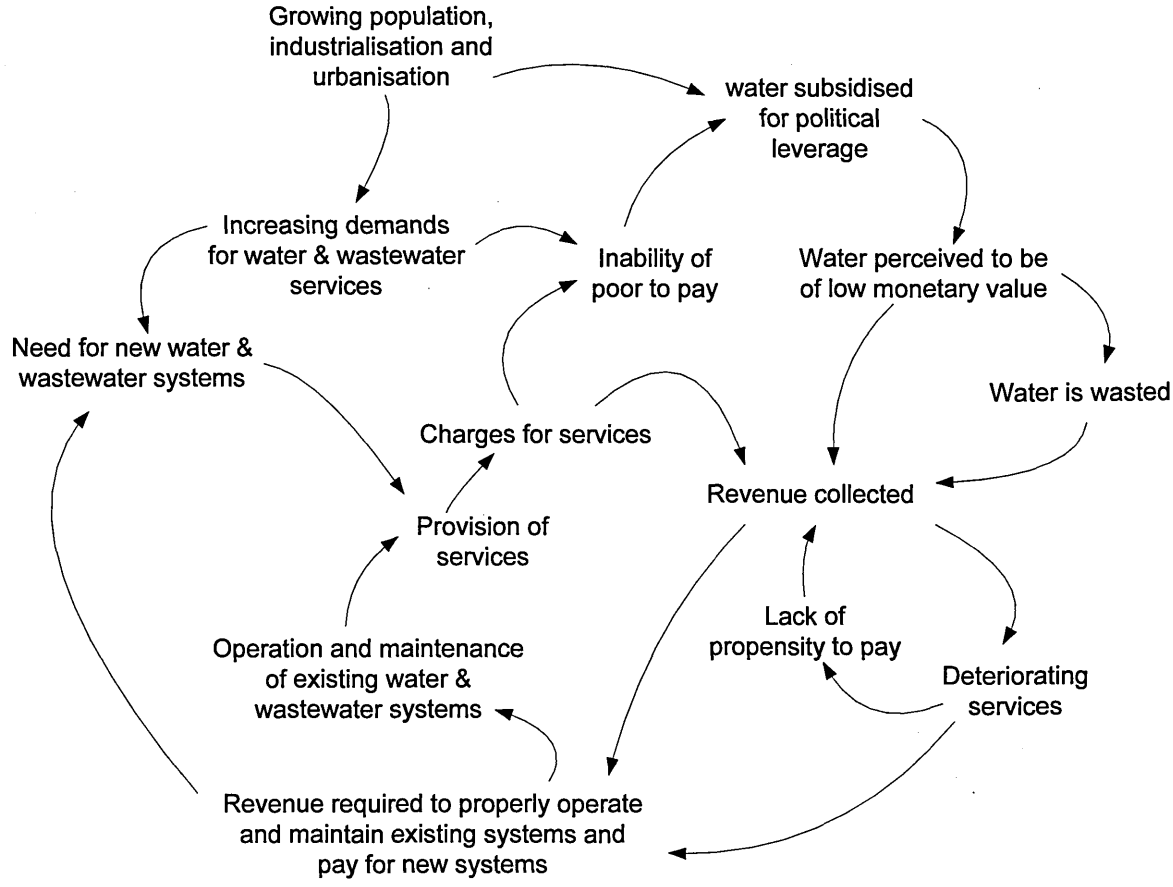

Figure 5 A multiple cause diagram showing the factors that affect supply and demand for services

Source: this thesis

As shown in Figure 5 the factors affecting supply and demand do not form a simple single cycle but consist of several positive feedback loops (shown in the diagram where arrows all in the same direction make complete circles). Breaking out of these loops can be difficult without appropriate water pricing. It is well-proven in developed economies such

as in Europe, for example, that the use of economic tools encourages efficient use of water and ensures equitable allocation and use amongst competing users (Herrington, 2007; European Environment Agency, 2010; Global Water Intelligence, 2010). This use of economic tools is not happening in many developing economies where water is seen as a basic human right, and social and political pressures often outweigh economic considerations. Much research has been conducted on water pricing and tariff structures in developing countries (Foster, 2005; Sohail, 2004; Walker, 2000; Dinar, 2000). This research shows a clear link between highly-subsidised water consumption and poor maintenance and the lack of capability to expand infrastructure to keep pace with urban growth, let alone population growth as a whole. However, reforming tariff structures to achieve cost recovery should not be incompatible with making services available to all, regardless of their economic resources (World Bank, 1999; United Nations, 1997). This kind of reform requires governments to follow through with decisive action, rather than pay lip service to reforms. In the case of India, water and water pricing remain highly politicised[2]. But this is changing in a few reformist States in India, such as in Tamil Nadu and Orrisa, where there is political will, although the focus is on fiscal reform rather than tackling the underlying organisational and institutional issues. For reforms to succeed, governments will need to reduce the size of public sector agencies, and ensure good governance that includes the active involvement of all stakeholders, including user groups, to take a greater stake in water planning and management (Pitman, 2002).

In many developing countries such as India, reforms to improve the management of water resources are well established or under way (Polidano, 1999b; Shirley, 2002; World Bank, 2002; Ongaro, 2004). These reforms often begin with adjustments to the legal, institutional

[2] India is a key example of where governments are limiting revenues and thus financial sustainability by restraining tariffs to maintain popularity, despite demonstrable willingness by customers to pay more for improved services. In many cases those same customers are obliged to pay much more for tankered or packaged water deliveries, rather than piped supplies due to local government interference and politicisation of tariffs. These aspects are integral to water management and governance. Source: Sohail, 2004; De Seta, 2005.

and regulatory frameworks. The most significant changes include decentralisation, better coordination or amalgamation of water concerns across sectors, greater user participation, involving a broader range of providers (private sector, community-based organisations, public utilities), and more focus on river basin management. Whilst India has embraced the need for sectoral reforms, some States, including Kerala, have been slow to take up the challenge (Pushpangadan, 2003).

Integrated Water Resource Management (IWRM) and Sustainable Development

The concept of sustainable development was first brought to the international stage by the World Commission on Environment and Development, which adopted the following definition of sustainable development: "Sustainable development is development that meets the needs of the present without compromising the ability of future generations to meet their own needs" (World Commission on Environment and Development, 1987, p43).

With regard to water, an effective strategy for sustainable development involves management of water resources to preserve the ecological integrity of water supply systems, waste less water, allow fair access to water supplies, and give people a say in how water resources are developed and used; i.e. participatory decision-making (Miller & Reidinger, 1998). However, it wasn't until 1992 that sustainable development entered the public consciousness. This was brought about as a result of the first 'Earth Summit' in Rio de Janeiro, Brazil. Ten years later, at the Johannesburg Summit (commonly referred to as Rio + 10) the positive role of the private sector was recognised, paving the way to an array of partnership projects between business, government and civil society (World Water Council, 2000; Kothari, 2002; Shirley, 2002). In the context of water management, this encouraged governments in developing countries to access additional development assistance from the West, and tap into capital markets, and operational expertise, provided by the private sector. Involvement from the private sector came in a number of forms,

including Public-Private-Partnerships (PPP), Water Concessions (long-term water supply contracts), Build-Operate-Transfer (BOT) schemes (water infrastructure built by private companies who also financed the schemes) (Thames Water Utilities, 2003). A Millennium Summit (the 60th session of the General Assembly of the United Nations) was held in New York in 2000. Its purpose was to discuss the role of the United Nations at the turn of the 21st century. At this meeting, world leaders from 189 member states ratified the United Nations Millennium Declaration, which set a number of ambitious targets (Millennium Development Goals) to help the world's poorest countries' development and to eradicate poverty by 2015. One such target was to halve the number of people without access to safe drinking water by the year 2015.The specific goal and targets for environmental sustainability are stated as follows (United Nations Development Programme, 2003b, p3):

"Goal 7: Ensure environmental sustainability:

- Target 9: Integrate the principles of sustainable development into country policies and programmes, and reverse the loss of environmental resources
- Target 10: Halve by 2015 the proportion of people without sustainable access to safe drinking water"

In 1992, Dublin, Ireland, hosted the International Conference on Water and the Environment that introduced the principles underpinning Integrated Water Resource Management (IWRM). The Global Water Partnership definition of IWRM is stated as follows:

"IWRM is a process which promotes the co-ordinated development and management of water, land and related resources, in order to maximise the resultant economic and social welfare in an equitable manner without compromising the sustainability of vital ecosystems" (Global Water Partnership, 2009, p18). In effect, it is a coordinated, goal-directed process for controlling the development and use of river, lake, ocean, wetland, and other water assets.

The principles formulated in Dublin, known as the 'Dublin Principles' (Snellen, 2004) involved an international consultative process and were developed in response to the growing problems of global water scarcity and poor management practices. The four guiding principles are:

- "Principle No.1 - Freshwater is a finite and vulnerable resource, essential to sustain life, development and the environment
- Principle No.2 - Water development and management should be based on a participatory approach, involving users, planners and policy makers at all levels
- Principle No.3 - Woman play a central part in the provision, management and safeguarding of water
- Principle No.4 - Water has an economic value in all its competing uses and should be reognised as an economic good" (*ibid.,* pp8-9)

As can be seen from the definitions above, IWRM and the principles of sustainable development are inextricably linked.

In many countries there is still fragmentation amongst water management sectors and the institutions that run them (Mitchell, 1990: Global Water Partnership, 2000a). This is the case in India. Consequently there appears to be little interaction, coordination or understanding of conflicting social, economic and environmental needs. Application of IWRM principles requires the development and application of a holistic approach to management of water that breaks down these barriers and sets a framework of appropriate legislation and regulation, to ensure compliance and sustainability (Global Water Partnership, 2009). In many developing countries (India included), the operation and maintenance of water systems is controlled by centralised administrations - in India's case, centralised administrations are within each of the States. This top-down approach often proves to be ineffective in addressing local water needs. Whilst there has been a recent trend towards decentralisation in India (although this has been limited to devolving powers

to State Authorities, such as the Kerala Water Authority), this approach needs a supportive legal and regulatory framework with a fair system of water charges to allow service providers the required level of operational and financial autonomy for efficient and sustainable delivery of services (Foster, 2005). This kind of support is not yet available in Kerala (Government of Kerala, 2002). The Government of Kerala has practiced decentralised planning since 1997, and since that time has sought to increase coverage in rural water, and sanitation services, which had proven, and continues to be, much more problematic than urban water coverage, due to the geographical spread of villages throughout the State. The 'Rural Water & Sanitation Agency' was set up for this purpose, and has worked alongside KWA to improve supply coverage. KWA has a long history of support and intervention from a number of other agencies[3] dating back to 1980, with varying degrees of success. The most distinguishing factor, however, is that none of the initiatives have proven to be sustainable once support was withdrawn (Chackacherry, 1993, 2003).

[3] For example, with funding from the Dutch and Danish governments, three Socio-Economic Units (SEUs) located at KWA offices were established in the late 1980s. Each SEU served on average 20 Panchayats (that is, a population between 400,000 and 1,000,000) people. Source: Government of Kerala, 2004.

II.3. The Context of Kerala

Figure 6 Map showing Kerala Districts and the location of Kerala within India
Source: http://www.kerala-tour-package.net/Images/Kerala [09.07.12]

II.3.1. Kerala - Overview

The State of Kerala lies in the south-west corner of the Indian peninsular and is bounded by the Western Ghats in the East, the Arabian Sea in the West, Tamil Nadu in the South, and Karnataka in the North. The total area of Kerala (38,863 square kilometres) accounts for 1.18% of the total landmass of India. According to the 2001 census (Government of India, 2008a), the total population in the State is almost 32 million (9.4% growth since 1991); representing 3.1% of all India, with a population density of 819 per sq. km, compared to 749 per sq. km. ten years previously. The State is

divided into 14 Districts (spread over 63 Taluks[4]) and 1452 Revenue Villages. There are 991 Panchayats[5], 53 Municipalities, and 6 Development Authorities.

Kerala has achieved the highest levels of literacy and unprecedented standards of higher education. Health conditions are excellent, with the lowest infant and maternal mortality rates, and the highest life expectancy among all the States in India. Kerala has the highest female to male ratio in India, with 1058 females to every 1000 males (compared to an all-India average of 933 to 1000), and females play a major societal and political role in the State (Government of Kerala 2008a).

Kerala records the highest score amongst States in India on the United Nations Development Programme's Human Development Index, and the number of people living below the poverty line (25%) is significantly below the national average of 35%. Almost 91% of the populace is literate (all-India figure is 65%); this has led to a rise in those employed in technical fields such as engineering, medicine, IT, etc., and according to the Federation of Indian Chambers of Commerce and Industry, this has led to more than 1.5 million professionals migrating to Gulf countries for better prospects (Government of India, 2008b).

II.3.2. Kerala's Water - Policy, Resources and Responsibilities

Whilst community-managed traditional water supplies in the form of open dug wells and ponds have been in existence for generations, the first protected water supply system in Kerala was introduced in 1914, in Ernakulam. Considering the small size of the State, its high population density, and the complex nature of its plural society and regional variations, Kerala has made significant strides in the water and sanitation arena.

[4] Taluk: a city or town that serves as the administrative headquarters for a collection of towns in that area, exercising fiscal and administrative powers over the villages and municipalities within its jurisdiction. Source: Government of India, 2003.

[5] Panchayat: a local government body at the Taluk level, with links to the District Administrator. Source: Government of India, 2003.

Water policy

Recently, under the Eighth, Ninth and Tenth Investment Plans[6], as well as the 73rd and 74th Constitutional Amendments, the government of India has empowered state level Urban Local Bodies (ULBs) to plan and administer water supply projects (including the right to create tariff structures) within their jurisdictions. The 73rd Constitutional Amendment led to the Sector Reforms programme launched in 1999, with a major shift in thinking and policy towards a decentralised, people-centric and demand-responsive approach. This was further reinforced in the recent 74th Constitutional Amendment. This paradigm shift incorporates the principles of:

- Adoption of demand-responsive approaches based on empowerment, full participation in decision making, control and management by communities
- Shifting the role of government from direct service delivery to that of planning, policy formulation, monitoring and evaluation, and partial financial support
- Partial cost-sharing and 100% Operation & Maintenance responsibility by users (Government of India, 2002)

The reforms also call for substantial institutional development with regard to services, enhancement of technical and managerial capacity, appropriate forms of public-private partnership, private sector participation, use of information systems, etc. to achieve sustainability (Government of India, 2002). Additionally, the 10th Investment Plan advocates pricing mechanisms to discourage excessive water use, mandatory water-efficient systems for flushing, reduction of leakage and unaccounted for water (UFW)[7], recycling of treated sewage effluent, rainwater harvesting, etc. (Government of India, 2003). KWA is yet to seriously take up this challenge.

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[6] The economy of India is based in part on 5-year Investment Plans, which include funds allocated by central government for socio-economic development, including water supply schemes at state level. Currently, India is executing its 11th 5-year Investment Plan. Source: Government of India, 2003.

[7] According to the 'International Water Association (IWA), water losses are divided into 'real' and 'apparent' losses and together they represent Unaccounted for Water (UFW). When combined with Unbilled Authorised Consumption (metered & un-metered) this equates to the total Non-Revenue Water (NRW). Source: IWA "Best Practice" Water Balance and Terminology, IWA, 2000.

Despite doing well in most development areas, Kerala appears to struggle to improve its performance in the water sector. According to the 2001 census, Kerala has 6.6.million households, of which 40% have a piped supply, 56% have a well supply, and the remainder rely on other sources (such as rivers, etc.). Seventy-nine per cent of households have water within their premises (not necessarily inside the house) and 14% have to fetch water from nearby public stand posts (Government of India, 2008a). The remaining population depend on open wells, ponds and natural streams (Government of India, 2008c).

The Government of India (GOI) National Water Policy of 1987 gave top priority to drinking water supply, and set a target of 100% accessibility by 2003 - which was not achieved. It also laid down minimum water supply norms of 40 lpcd (litres *per capita* per day) for rural areas and 70 lpcd for urban areas. The National Water Policy of 2002 superseded the 1987 policy, and this laid down more stringent rules to ensure better management and coordination of water resources and introduced the concept of IWRM but maintained the minimum *per capita* water supply norms. The GOI provides funds to the Kerala State Government to manage its water and wastewater services under the aegis of the Rajiv Gandhi National Drinking Water Mission (RGNDWM), set up in 1990 specifically for this purpose. Although water is primarily under the jurisdiction of the State, according to national water policy, the Kerala Sate Government must comply with GOI policies, which are applicable to the entire country (Government of India, 2002).

In tune with national thinking, Kerala adopted a comprehensive State Water Policy in 1992, the first of its kind in any State in the country. The State Government set a target of expanding water supply coverage to all by 2001, but as of 2012 this has not been achieved (Government of Kerala, 2012). The State Water Policy lays out the short and long-term aspirations for water supply management in Kerala. Key areas of focus include the development of legislation for irrigation works, legislation for controlling groundwater

abstraction for sustainable development, and also to protect water quality, household wells and the environment, and the introduction of continuous monitoring of freshwater bodies to maintain quality and ecology. Emphasis is placed on the utilisation of all non-conventional freshwater resources for domestic water supply, and implementation of permanent schemes to combat drought, as well as tackling leakage from existing networks and refurbishment of non-functioning plant, including pumps for bore and tube wells which have fallen into disrepair due to lack of funds and/or poor management practices. The policy also talks about the need to impart training to the community on the maintenance of household wells and hand pumps for bore wells (Government of Kerala, 2008b).

Whilst it can be said that some of these initiatives have commenced or have been put in place, others remain difficult to achieve, especially where they relate to enforcement of regulations, and targets to supply the entire population (100 % service coverage). This highlights the need for a new approach to 'supply side' management[8] amongst competing demands that requires new thinking, new rules of engagement, and new ways of working.

Water Resources and Responsibilities

The Minister for Water Resources has overall political responsibility for all aspects of water resources in the State. The Water Resources Department covers the areas of irrigation, groundwater, drinking water, and wastewater disposal, and is headed by a Secretary to Government who carries the administrative responsibility for the Department (Government of India, 2002).

There are 44 rivers in Kerala, the majority of which originate and flow within the State boundaries, but whilst the rainfall in the State is higher than the national average, at

[8] 'Supply side' management in this context refers to infrastructure projects implemented by the water utility, in order to increase the overall amount of water available to the system. This is in contrast to 'demand management' approaches, which seek to maximise the use of water already available in the system (improving process control, reducing water leaks, better network management, etc.) without the need to augment supplies through tapping into additional water resources.

3000mm per year, a uniform supply rate is unachievable due to huge variations in flows between the dry and the monsoon periods. Whilst rainwater run-off is estimated at 702 MCM (million cubic meters), only 427 MCM is useable due to a lack of storage facilities and saline intrusion (Government of Kerala, 2004). Coupled with the fact that the State has a relatively high population density, the *per capita* fresh water availability is one of the lowest in the country (Government of India, 2009). Kerala has an abundance of other natural water sources such as springs, ponds and streams, as well as an extensive network of backwaters and lagoons but groundwater sources are under stress due to a high dependency on dug wells, and subsequently the State suffers from acute water shortages during the dry season (Government of Kerala, 2008a). The water collected from surface or groundwater sources is conveyed to treatment plants for removal of impurities. The treated water is disinfected and stored in clean water reservoirs to maintain its quality before transmission to customers. Overhead storage tanks along the piped distribution system are often used to maintain reasonable pressures at customers' taps. The main responsibility for water resources rests with the Water Resources Department, which is made up of four different bodies - the Irrigation Department, the Ground Water Department, the Kerala Water Authority, and the Kerala Water & Sanitation Agency. However, as described below, responsibility for various aspects of the water cycle to ensure sustainability and integrated water resource management is not well defined, and therefore requires the interaction and close cooperation between key sectoral players and other stakeholders, such as Community Groups/Cooperatives, Local Bodies, Non-Governmental Organisations (NGOs), etc.

The Water Resources (Irrigation) Department is headed by a Secretary to Government and is responsible for major, medium and minor irrigation (surface water) schemes, anti-sea erosion, flood control, inland water transport, irrigation design & research, investigations, etc. Six Chief Engineers take responsibility for the formulation of water policies, the

maintenance of completed projects, and the preparation and execution of irrigation projects. The department is responsible for the formulation of the State Water Policy, and the Integrated Irrigation Bill, the fixing of water rates, and for formulating the State's Integrated Water Resources Development Plan for irrigation, drinking water and electricity (Government of Kerala, 2004).

The Ground Water Department takes responsibility for the identification and evaluation of groundwater potential in the State, for monitoring the qualitative and quantitative variations of groundwater in various aquifer zones, providing necessary technical guidance for location and design of wells, and utilization of groundwater. It also takes responsibility for the implementation of its own programme for development and supply of groundwater for irrigation and drinking water supply in areas not served by other agencies. It stipulates policy measures to regulate and control groundwater development to ensure environmental protection and sustainability of groundwater resources (Government of Kerala, 2004).

In terms of agency coordination, a certain amount of ambiguity is evident in a number of activities associated with the management and development of water resources. Where clear lines of responsibility are not assigned, close liaison and 'cross-process' understanding is crucial to ensure focus in a number of key areas, including:

- The identification and development of conventional and non-conventional (for example, rainwater harvesting and water-reuse) water sources
- Conservation of the environment with respect to sustainable development
- Pollution control legislation and monitoring
- The provision of accurate information with regard to water resources to ensure that a balanced view is taken by all stakeholders with respect to integrated water resource management
- Equitable pricing of water/wastewater services
- (Government of Kerala, 2008b)

In order to improve agency coordination the Kerala State Water Resources Council (KSWRC) was established (Government of Kerala, 2002). Members include the Chairman of Kerala Water Authority, the Director of the Ground Water Department; the Chairman of the Kerala State Council for Science Technology & Environment (KSCSTE), the Chairman of the Kerala State Electricity Board (KSEB), the Chief Engineer of the Irrigation Department, and the Executive Director of the Centre for Water Research Development and Management (CWRDM). From discussions with these officers, it is my view that due to a lack of resources and effective powers, a considerable task lies ahead for the integrated management of water resources (De Seta, 2005).

My analysis of sector responsibilities is summarised in Figure 7 which depicts the relationship between the agencies responsible for policy formulation, regulation, resource development, and water use schemes. The diagram indicates a number of overlaps in responsibilities. For example, the various agencies are compelled to pronounce policies for the conservation of water on the one hand, and on the other, they are having to exploit resources in the rush to meet mandated responsibilities.

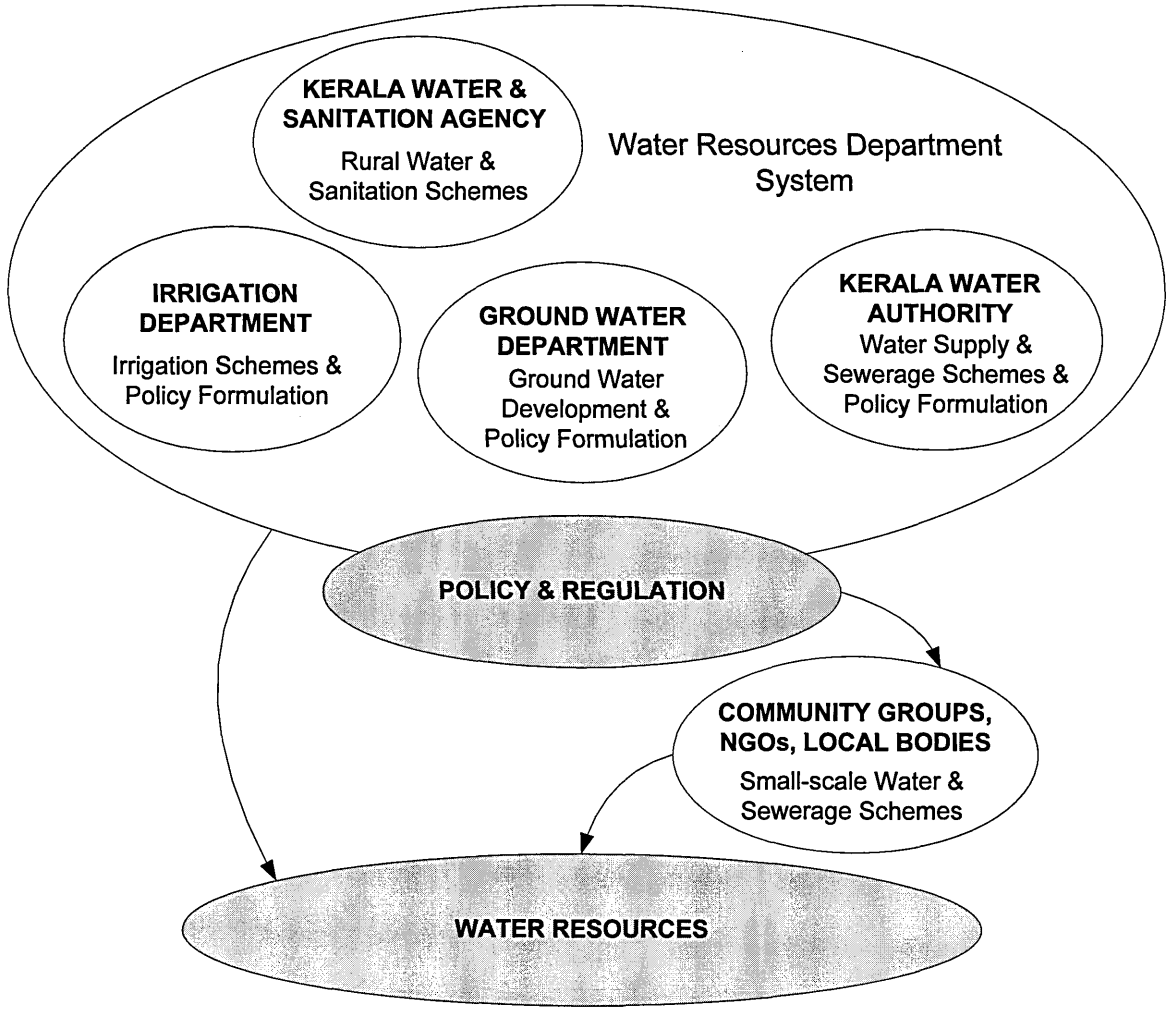

Figure 7 An influence diagram showing conflicting demands on water and water conservation in Kerala

Source: this thesis

Kerala Water Authority

Kerala Water Authority (KWA) was established on 1st April 1984 as an autonomous body of the Government of Kerala, replacing the then Public Health Engineering Department. A Board chaired by the Secretary to Government for Water Resources is responsible for the day-to-day management of KWA. The high-level organisation structure showing KWA in relation to other agencies responsible for water resources is shown in Figure 8.

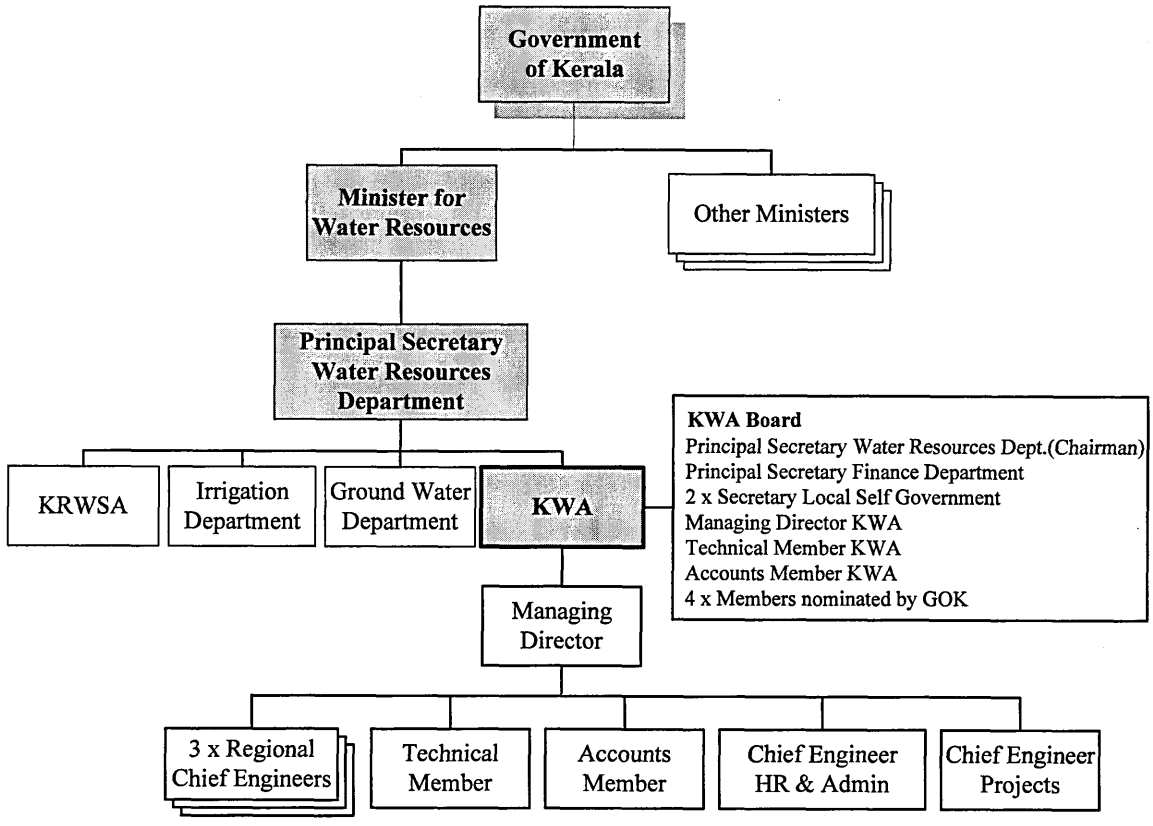

Figure 8 Water Sector Agencies (2005)
Source: De Seta, 2005

At a sector policy level, some ambiguity in responsibilities between KWA and other agencies is evident for water abstraction, water quality, sanitation, pollution control, environmental control, sustainable development of water resources, etc. For example, environmental issues resulting from over-exploitation of water resources does not appear to be the responsibility of any single agency. Also, mechanisms for developing regulatory responsibilities, as well as for reporting, and coordination with other regulatory bodies, does not appear to be a key focus for KWA, and therefore the current management set-up does not assign specific responsibility or 'ownership' for this function. In addition to this, whilst the main objective of the Kerala Water Supply and Sewerage Act was to establish an autonomous Authority, the amount of freedom extended to KWA in pursuing its mission without undue interference or political constraint in practice, appears to be minimal. Autonomy is primarily constrained by KWA's reliance on government for

funding its operation, as well as investment programmes, recruitment, promotions, service rules, pay and conditions, etc.

In order to impart more autonomy and to facilitate the raising of much-needed finance, Kerala Water Authority was constituted by the Government as a 'Board', through enacting the "Kerala Water Supply & Wastewater Ordinance 1984". This Ordinance was later replaced by the "Kerala Water Supply & Sewerage Act 1986". The Board of Directors of KWA consists of nine Government-elected members, including for the positions of Chairman and Managing Director. The Kerala Water Supply & Sewerage Act 1986 lays down responsibilities and powers for KWA, and provides for the establishment of an autonomous Authority for the development and regulation of water supply and wastewater collection and disposal, and for matters connected therewith. Under the Act, KWA has been given responsibility for the provision of services with regard to water supply, and collection and disposal of wastewater for the Government, and on request, to private institutions or individuals. This includes the preparation of State plans for water supply, and collection and disposal of wastewater on the direction of the Government. Interestingly, the Act allows the Authority to fix and revise tariffs, taxes and charges for water supply and maintenance services in the areas covered by the water supply and wastewater systems of the Authority, and therefore it is effectively self-regulating on both technical and financial matters. The same goes for the establishment of State standards for water supply and wastewater services. KWA takes responsibility for all the functions previously performed by the Public Health Engineering Department of the Government, before the commencement of the Act, even where these duties are not explicitly mentioned, and affords them the power to make their own assessment of the requirement for manpower and training in relation to water supply and sewerage services in the State. KWA remains reliant on the Government for its budget, and continues to make financial losses due in part to highly-politicised and artificially-low water tariffs, and public sector

management practices and ethos. Breaking with tradition will likely require a change in 'hearts and minds', regarding work practices and the de-politicisation of water.

The Company's vision, mission statement, and corresponding strategic goals as published on the company website (Government of Kerala, 2012) and shown below, was one of the targets of the change management programme, described later (section V.3.1).

> *Vision: "We will provide quality water supply and wastewater services in an environmentally-friendly and sustainable manner".*
>
> *Mission: "We will transform ourselves into a customer-friendly organisation, providing services at the doorstep. We will achieve this by being open and honest in our business dealings, being financially self-sufficient, valuing and developing our employees, and continually improving our work practices".*
>
> *Strategic Goals: "We shall:*
>
> 1. *Meet our statutory obligations*
> 2. *Operate as a financially-independent and autonomous body*
> 3. *Improve commercial and operational practices*
> 4. *Focus on customer services*
> 5. *Restructure KWA to become a 'process' organisation*
> 6. *Invest in developing our employees*
> 7. *Plan, invest in, and maintain assets*
> 8. *Operate all our assets efficiently, and*
> 9. *Make full use of information technology and information systems investments"*

Faced with the challenges of water supply (discussed in sections II.2.1 - II.2.3 above), KWA recognised that as well as implementing further projects to augment existing supplies, it would also need to improve demand-management approaches which were receiving insufficient focus. Demand-management approaches include more efficient management of water production facilities, improving existing infrastructure to reduce the level of water losses (through fixing leaks and better management of network and pumping regimes), educating customers on water conservation techniques (including rain water harvesting), and promoting the use of water-saving devices.

As of 01/04/2010 (Government of Kerala, 2012), KWA's infrastructure included 1.25 million piped water supply connections (0.83 million in 2002) and 205,000 public stand posts (174,000 in 2002) and demand for water was more than twice the company's capacity to supply. Water is supplied via more than 1000 supply schemes, and a further 140 major water supply schemes are being implemented (*ibid.,* 2012). Where there is a shortfall in supply, consumers are forced to augment their needs from wells, rivers, ditches and water vendors.

KWA struggles to meet mandated responsibilities in terms of supply coverage, even at the low supply norms (40 lpcd in rural areas and 70 lpcd in urban areas) stipulated in the latest Water Policy (Government of Kerala 2008b). The 'felt need' (Chackacherry, 2004) in terms of the socio-economic impact of water on the user is significant, considering the domestic supply sector accounts for 90% of all water consumed (Government of Kerala, 2012). This places a huge responsibility on KWA to devise new methods for meeting future demands. The challenge for the organisation is therefore to devise new approaches for change that can produce tangible benefits and sustainable results for those that rely on its services.

II.4. The Project Context and Pre-Research Phase

The following sub-sections describe the events that led from the pre-research phase to the research effort described in this thesis.

II.4.1. The Kerala Water Supply Project

As mentioned in Chapter I, my initial involvement with Kerala Water Authority began in 2004 as a consultant engaged on the Kerala Water Supply Project (KWSP). My role was to provide development assistance that could help the organisation become more effective over time. Having already worked with KWA for a year prior to commencing my research and with a further three years to run on the project, I was keen to explore ways of building active involvement and ownership of change processes with the organisation that could

help it deliver sustainable results. This presented the ideal opportunity to engage the organisation with my research inquiry (described in Chapters IV and V).

KWA commenced implementing the KWSP in 2004 at a cost of 20 billion Rupees (£250m). The Project entailed implementation of five independent water supply schemes, and an Institutional Strengthening component. The project was completed at the end of 2010. The Project had three distinct phases:

1. Detailed engineering design, concerned with scheme and programme design, bid documentation and tendering support
2. Construction engineering services including contract supervision
3. An institutional strengthening component[9] (detailed in section I.3).

The engineering aspects of the Project (Phases 1 and 2) covered the augmentation and rehabilitation of water supply systems in two urban regions (Figure 9), namely Kozhikode and Trivandrum (Kerala's capital city) and included the construction of water supply systems for three rural regions, namely Pattuvan (Kannur District), Chertala (Alappuzha District) and Meenad (Kollam District). The Project provided drinking water to approximately 4.3 million people.

[9] The responsibility for this aspect of the Project rested with me.

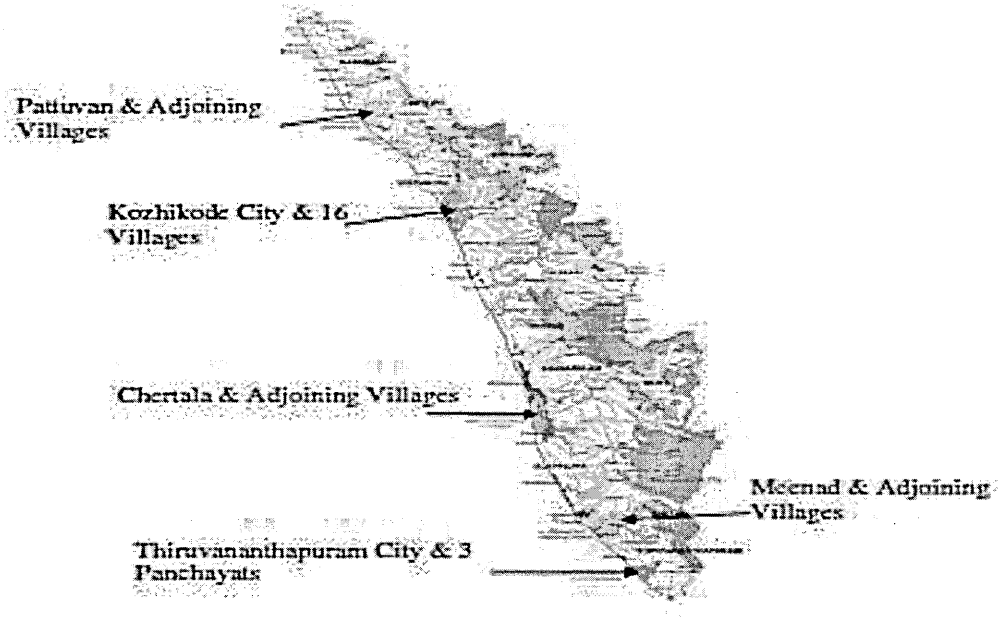

Figure 9 Project area showing the State of Kerala and city/scheme locations

Source: De Seta, 2005 (adapted from http://www.mapsofindia.com/maps/kerala/ [04.05.04])

The engineering aspects of the project lie beyond the scope of this research. The work conducted under the institutional strengthening aspects of the project (Phase 3) was divided into two distinct elements. The first element concerned the implementation of information systems. The second element (which forms the basis of this research), was the requirement to assist KWA in a major initiative to build capacity and strengthen the organisation, with the aim of improving staff and organisational performance. Prior to the research effort, as a consultant, I carried out an organisational review (an initial assessment of the organisation) and suggested ways in which the organisation could be improved. The key aspects of the review were used by the company to inform a Change Management Programme (the first of its kind for KWA), with the aim of transforming themselves into a self-sustaining, commercially-focused, and professional organisation.

Although described as 'pre-research' the organisational review did form part of my preparation and in some respects I drew on it as if it were a pilot study.

II.4.2. Organisational Review

The need for an organisational review came about as follows. One of the stated tasks in accordance with the Terms of Reference (TOR) for consulting services for the KWSP was that KWA should be provided with human resource management and development assistance. Whilst it was recognised that managing people is one of the key functions performed by KWA, rather than look at training and human resource development in isolation (as suggested in the Project scope), it was agreed with KWA that there was benefit to be gained in conducting a wider review. This formed the basis of the organisational review, briefly outlined below.

The organisational review included a number of in-depth interviews with many key KWA staff, including the Board of Directors, senior managers and many other engineers, managers, supervisors and employees at all levels of the organisation. In order to save time, I provided a list of topics and specific questions beforehand, in order to provide contextualisation and direction for discussion. Due to time and resource constraints, I adopted a 'rapid appraisal' approach to engage the client throughout the review process (detailed in section III.2.1).

A large number of Reports, previous studies, and documents were also studied and analysed. The interviews provided the opportunity to elicit information from a cross-section of employees, based on their perspective of the issues being faced within the organisation. The insights gained from the interviews proved to be useful in workshops which were later conducted, in facilitating mutual understanding and agreement from workshop participants, some of whom previously held uncompromising views about the problems within the organisation, and how they should be tackled.

I devised a Strategic Model (Figure 10) as a means of ensuring that all business-critical activities were considered whilst reviewing the organisation. This model was later used at the first workshop, together with Figure 15 (section V.4.1) to introduce systems concepts.

The approach depicted in the model places equal emphasis on each of the key business areas shown. It can be seen that each business area or key activity is inter-connected in some way. This interconnectedness is crucial to the overall 'balance' of the organisation when it is considered as a system. The arrows linking the boxes signify the flow of information between the activities, each of which provides input or output to other activities.

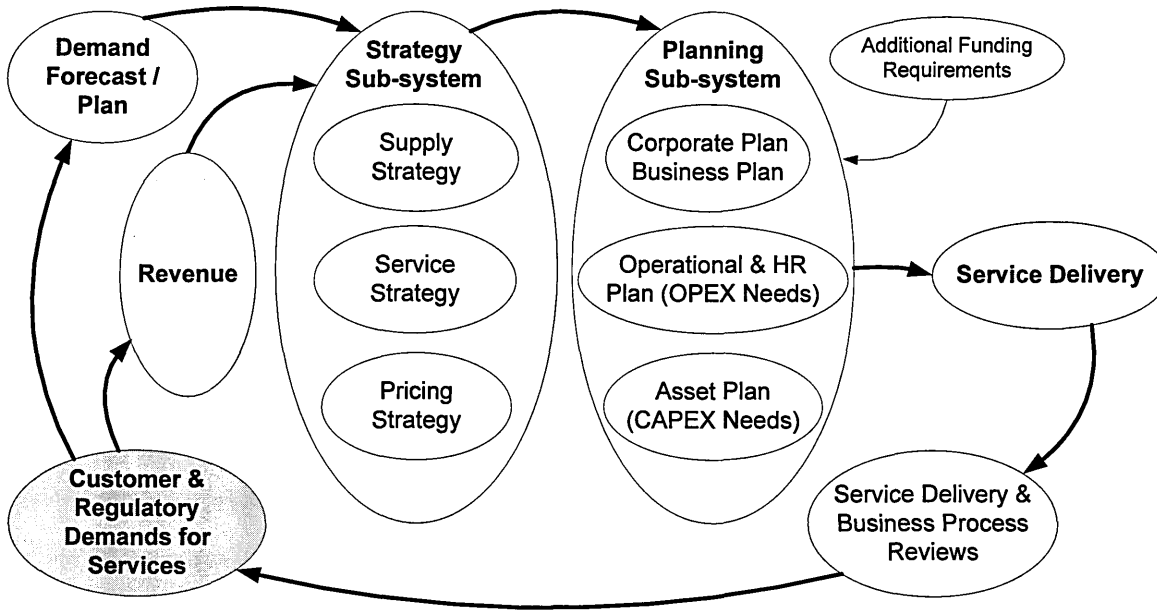

Figure 10 Strategic Model devised for the organisational review study, drawn as an influence diagram

Source: adapted after De Seta, 2005

The organisational review report was presented to KWA in June 2005 in order to provide the opportunity for critical review and understanding of the key findings; and for the organisation to devise an approach for improvement. Table 1 provides a summary of the key findings of the review, used to stimulate debate within the organisation. (Details on the review process and findings are given in Appendix 1).

Table 1 Some of the key issues faced by KWA identified in the pre-research phase

Organisational Dimension	Key Issues
Institutional Arrangements	▪ Lack of coordination with the Government of Kerala ▪ Lack of sector agency coordination/cooperation ▪ Lack of regulation and regulatory enforcement ▪ Lack of an integrated approach to water resource management (IWRM)
Utility Management	▪ Lack of capacity (management expertise) ▪ Lack of capacity (information technology and systems) ▪ Lack of strategy and policy direction ▪ Lack of Process and Performance Management (for example, Unaccounted For Water (UFW) reduction, energy and process chemicals efficiency, plant utilisation, labour efficiency, billing/revenue efficiency, etc.) ▪ Lack of project management skills and control
Community Participation/Management	▪ Community participation not an accepted approach ▪ No formal structural arrangements for dealing with user/beneficiary groups ▪ Low compliance with handing over rural schemes to Local Bodies
Spatial Planning	▪ Fast growth of population – water demand outstrips supply ▪ Poor compliance with mandated supply coverage
Resource Management	▪ Insufficient funds/financing to meet current/future demands for services ▪ Lack of project and financial control measures ▪ Tariffs not based on full cost recovery ▪ Poor billing/revenue collection practices and performance ▪ Insufficient pricing mechanisms to regulate/conserve water ▪ Lack of sustainable practices/care for the environment
Politics	▪ Lack of political will ▪ Lack of financial and management autonomy ▪ Political influence on infrastructure projects and priorities and interference in day-to-day management activities
Socio-economics	▪ Low and irregular incomes of a large part of the customer base, resulting in low capacity to pay for services ▪ Debt/disconnection policy not addressing underlying problems
Communication,	▪ Limited communications, consultation, involvement and

Organisational Dimension	Key Issues
Information and Education	public relations activities ▪ Lack of awareness campaigns/outreach programmes ▪ Low public enlightenment to report problems and to pay for services (especially Local Bodies)
Operation & Maintenance and Service Provision	▪ Contaminated/depleting water sources ▪ Low service levels/insufficient water supply and lack of sanitation services, insufficient infrastructure to meet demand ▪ Poor quality of water delivered ▪ High levels of leakage and 'unaccounted for water' (UFW) ▪ Lack of O&M strategy and planning ▪ Lack of planned preventative maintenance and supply chain management

Source: De Seta, 2005

These findings provided a focus for discussion and highlighted (i) the need for KWA to consider its organisational arrangements within each of the broad categories listed above, and (ii) the need to develop capacity to help mitigate the weaknesses identified. A number of issues related to the need for improvements at an institutional level, and this highlighted the need for new and additional skills. Obtaining these skills, it was felt would help change 'hearts and minds' to ensure organisational transformation.

The findings also pointed to the need for a professional, competent Board of Directors who could be afforded sufficient autonomy to operate without excessive government interference. Discussions also revealed that developing business/commercial capacity (in addition to the existing strong technical capacity) was felt to be a prerequisite for organisational sustainability.

The imperative to turn around its current (poor) performance in order to build government and customer confidence was also raised. In terms of financial sustainability it was felt that commercial activities would need to be pursued with equal vigour to technical activities but that this would require a shift in thinking from the current ethos and mode of operation prevalent in government organisations in India, where profit is not the main

driver. For example, the lack of commercialism in public sector organisations in India is caused in part because the government subsidises their operations (in the form of a budget), to the extent that revenues do not meet the full cost of providing service. The shortfall in the water sector is largely due to the politicisation of water pricing.

Equally, it was felt that the Government of Kerala (GOK) could be more proactive in ensuring that KWA meet their service and commercial obligations by laying down the foundations for KWA to become a self-sustaining and viable entity, and in ensuring that sector reforms are followed through. The lack of demonstrable political will, however, on the part of the government was seen as an impediment to the reform process. This, it was felt, had led to inappropriate institutional arrangements and unclear organisational mandates which greatly hindered service provision. Furthermore, a lack of inter-agency coordination resulted in duplication of effort, inconsistency of approach, and lack of focus in the delivery of services. Given the complexities that often surround the delivery of water and wastewater services, it was felt that the involvement of users or communities (especially in rural areas) in the planning and management of services needed further attention, bearing in mind that poor organisational capacity of user groups can also be undermined through political interference in decision-making.

From these initial discussions came the realisation for KWA that a 'business as usual' approach was no longer sustainable and that a major shift in thinking was required in the way the organisation was run. This realisation saw the conceptualisation of the 'change management programme' and thus the opportunity for research.

The KWA Board of Directors (headed by a new Managing Director who brought a new dynamic to the situation) decided that the findings of the review would be used to guide the change initiative. The overarching principles agreed by the Board and delegated to the project sponsor (one of the Board Director's) were as follows:

(a) An approach was needed that built on the inherent skills of those involved and on the enthusiasm already generated for change amongst the KWA senior management team

(b) The approach needed to be systemic, looking at the organisation as a whole

(c) For changes to be sustainable in the long run, the approaches adopted should be devised, owned, and managed from within the organisation

It was agreed between the project sponsor and me that a participatory approach based on soft systems methods could satisfy these needs. This was supported by findings from literature (see section III.2.1) and my own previous experiences. This guided the development of a suitable methodology (Chapter IV) to carry out the fieldwork described in Chapter V, which represents the empirical aspects of my inquiry.

II.5. Concluding Remarks

This chapter has explored the issues at stake with regard to water, not only its availability as a resource, but also its management and protection, and highlights the need for good governance and the need to build institutional capacity in a development context. An outline is provided of the roles and responsibilities of Kerala Water Authority and other sector agencies responsible for water management and governance, touching upon some of the conflicts faced within the sector to meet mandated responsibilities. A summary of the Kerala Water Supply Project including the organisational review I conducted in the phase that preceded this PhD research is also included as I drew on it as if it were a pilot study.

Two key issues have been identified in the thesis thus far that I take forward and build on in subsequent chapters. Firstly, there is a perceived need for capacity building in the Keralan context, and secondly, Kerala's issues concerning water institutions and management capacity are interconnected with issues at a regional, national and international level. These aspects are interrelated and are explored from further viewpoints

in the next chapter, which provides a review of relevant academic literature consulted and provides the theoretical basis on which the research has been devised.

CHAPTER III - LITERATURE REVIEW

III.1. Introduction

The previous chapter explored the contexts of the research, drawing mainly on policy documents and my previous experience. This chapter now goes on to review the main points that have emerged in this exploration of contexts and compares them with theory drawn from an extensive range of mainly academic literature.

The needs for good governance, effective management practices, and institutional capacity, to ensure availability and protection of water resources, were highlighted in Chapters I and II.

Two key issues that have emerged are:

1. Addressing the issues of the problem statement in Chapter I appears to require knowledge and understanding of water, institutions and the potential for capacity building in the Keralan context.
2. Kerala's issues concerning water institutions and management capacity are interconnected with issues at other levels - regional, national and international. They are also complex, involving human activity systems where problems and boundaries are unstructured and ill-defined.

A choice has therefore been made to focus in this Chapter on the theoretical underpinnings of:

(i) Institutional strengthening and capacity building, and water management and governance in development situations, relating to issue 1.

(ii) Participatory systems approaches and organisational learning, relating to issue 2 because, as will be discussed, systems thinking is needed to develop understanding of the kind of interconnected and complex issues identified

in Kerala, and because of a need to build on local and organisational knowledge.

III.2. Institutional Strengthening and Capacity-Building in Relation to Water Management and Governance in Kerala

III.2.1. Institutional Strengthening and Capacity-Building in Development Situations

The terms 'institutional strengthening' and 'capacity building' are commonly referred to in development contexts. These terms will have different meanings and connotations depending on the viewpoint of the actors involved (Abrams, 1997; United Nations Development Programme, 2003a; Asian Development Bank, 2003; Greif, 2006). For purposes of my inquiries, I define institutional strengthening as "the development of institutional capabilities within the environment in which the organisation operates" and capacity-building as "activities which can strengthen the knowledge, abilities, skills and behaviour of individuals". (I discuss meanings of 'institution' and 'capacity' later in this section).

But when it comes to strengthening institutions or building capacity, what are the determinants and how can best practice be developed and applied in the local context? Many authors and practitioners have addressed these questions (e.g. Taylor, 1996; Jacobs, 1996; Ongaro, 2004; International Institute for Environment and Development, 2011) and their work influenced the direction of this research in an effort to ensure that the approach and methodologies used were tried, tested and relevant in a development context. Abrams (1997) developed the 'Threshold Concept' as "a rational framework for capacity building, where 'capacity thresholds'[10] must be met for sustainability" (*ibid.*, p3). Abrams (1997) suggests that different capacity-building requirements are necessary for different service and technology choices and therefore, capacity-building interventions should aim to address the gap between the initial or inherent capacity of a community (generic definition

[10] Abrams describes capacity threshold as the minimum level of capacity required to be reached in a certain discipline in order to ensure sustainability of the activity performed. Source: Abrams, 1997, p3.

used for an entity such as local body, village committee, local or central government department, etc.) and the capacity threshold desired. "In order to be used as an effective tool the framework must be realistic and appropriate to the circumstances in which both local people and the implementers function on the ground" (*ibid.*, p4).

This is supported by Mentz (1997) who suggests that within the African context of public service management, "the concept of '*capacity*' has evolved from the colonial days of control administration to one where a number of 'layers of capacity' related to personal and non-personal aspects constitute organisation capacity" (Mentz, 1997, p5). He argues that "personal capacity constitutes the 'nuts and bolts' of capacity-building and thus civil service reform, whereas non-personal capacity (corporate or administrative capacity), provides the context in which personal capacity is developed" (*ibid.*, p9). Mentz (1997) also argues that, the context in which African bureaucracies function differs markedly from the Western context in terms of hierarchical management structures and centralised decision-making - a fact that can often be overlooked when devising or importing solutions from outside the local context. Although the Indian context differs from the African context there are some similarities in terms of bureaucracies. For example, Nidumolu *et al* (2006) carried out a study of land use and water management plans in India, and revealed a general lack of implementation by the intended users and beneficiaries of the plans, citing the hierarchical top-down approach taken by the Indian government in developing the plans as the main cause of their lack of acceptance. They concluded that the approach which emphasises predominantly biophysical components fails to adequately take into account socio-economic factors.

This need to take account of local conditions has important implications for how capacity can be developed in the Kerala context, including:

1. Ensuring that methods employed in understanding and developing capacity are both relevant and workable in the local context

2. Methods devised to improve situations perceived to be problematic must take into account the perspectives or viewpoints of those involved, including their world views or 'Weltanschauung', according to Checkland (1999)

In simple terms, an *institution* can be described as "a structure or mechanism of social order and cooperation governing the behaviour of individuals, and the term 'institution' is commonly applied to customs and behaviour patterns important to a society, as well as to particular formal organisations of government and public service" (Schotter, 1981, p9).

North (1993), in his Nobel Prize lecture, defines institutions as "humanly-devised constraints that structure human interaction. They are made up of formal constraints (laws, rules, constitutions), informal constraints (norms of behaviour, conventions and self-imposed codes of conduct), and their enforcement characteristics. Together they define the incentive structure of societies and specifically economies.....and it is the interaction between institutions and organisations that shapes the institutional evolution of an economy. If institutions are the rules of the game, organisations and their entrepreneurs are the players" (North, 1993). He also said that organisations are made up of groups of individuals bound together by some common purpose to achieve certain objectives. Based on this analysis, perhaps a more common way to define institutions is to treat them as organisations that persist over time (Greif, 2006).

Based on this interpretation, I take the term 'institution' to overlap with the term 'organisation' and sometimes to be synonymous with it. However, institutions as rules of the game can extend to the contexts of organisations, not just operate within them. In the context of this research and based on the notion that participatory systems approaches can be a useful methodological approach to building individual and institutional capabilities, I suggest that institutional development seeks to encourage the development and strengthening of an organisation and its people. Therefore, for purposes of this research, *institutional strengthening* is defined as development of institutional capabilities of the

organisation within the environment in which it operates. This conceptualisation assumes that:

1. Institutions operate within a context (economic, social, political) and therefore capacity-building measures should look beyond the institution in isolation
2. Improved organisation performance often requires changes across a number of internal dimensions such as organisational arrangements, management, resources, assets, etc., and
3. Reforms (within and from outside the bounds of the organisation) often require changes in behaviour (business philosophy/ethics/culture), structure, operating systems and procedures, management and HR capabilities, etc.

Capacity-building forms an important part of institutional strengthening and often refers to assistance provided to entities, usually developing country organisations (such as KWA), which have a need to develop a certain skill or competence, or for general performance improvement. The United Nations Development Program (UNDP) took a lead in this as early as 1971, offering guidance to its staff and governments on what was then called 'institution building'. By 1991 the term had evolved to become 'capacity-building' (United Nations Development Programme, 1991). UNDP defined capacity-building as "the creation of an enabling environment with appropriate policy and legal frameworks, institutional development, including community participation, human resource development and strengthening of managerial systems" (*ibid.*, p11).

Capacity-building in the context of the KWSP relates to activities which can strengthen the knowledge, abilities, skills and behaviour of individuals, and provide improvements to managerial systems and processes such that the organisation can meet its mission and goals in a sustainable way. In this research these aspects of capacity-building informed the methodological approach developed for workshops held at the outset of the change management programme at KWA (detailed in Chapter IV).

As with other institutions, water institutions face many challenges. These include, the need for equitable allocation of water for competing demands, developing and properly maintaining infrastructure, improving water use efficiency, and reducing water pollution, amongst others. These aspects are ostensibly people-driven, and therefore, the degree of success or failure of water undertakings to provide effective and sustainable services can often depend on the competence and capabilities of those that run them. Here, the use of both quantitative measures (assessing actual performance against a set of key performance indicators by using quantifiable performance measures) and qualitative measures to measure subjective achievement (for example, the level of staff morale, or the level of customer satisfaction) can provide a useful means for assessing institutional capacity. Analysing these data can provide an indication of the strengths and weaknesses of an institution. In the case of formal organisations, it is then possible to design and implement a programme of improvement and strengthening (Taylor, 1996; Colvin *et al*, 2008; Francis *et al,* 2012).

Various studies have indicated that traditional norms are dysfunctional to the application of Western managerial practices in a non-Western context (European Commission, 2003; Global Water Intelligence, 2010). For example, Fleming (1966) cited in Ogbor & Williams (2003), reports that value systems and cultural practices in East African bureaucracies' often conflict with Western managerial norms, while Mentz (1997) and Singh (2003) relate this conflict in norms back to the era of colonial control administrations in Africa and India respectively. Similarly, some observers have speculated about various conditions that may promote or inhibit a given culture's acceptance of new forms of organisational behaviour, discussing these issues as 'human resource management' (Oddou & Mendenhall, 1991; Shenkar, 1995), 'compatibility' (Levine, 1980), 'norms of consistence' (Staw, 1984) and 'cross-national ideological support' (Cole, 1984). The general idea involved in the notions of 'convergence' and

'divergence' in the application of cross-culturally transferred organisational practices, seems to imply that the greater the compatibility (the degree of congruence between the norms, values and goals of the donor and those of the recipients), the greater the likelihood of acceptance by the recipients (Pitman, 2002; Ogbor & Williams, 2003; Asian Development Bank, 2006). An alternative explanation of the behaviour of cross-cultural management and organisational practices has been termed 'crossvergence'. Its proponents argue that there can be an integration of cultural and ideological influences resulting in a value system that is 'in between' the values supported by national culture and economic ideology (Ralston *et al,* 1993). Ralston has suggested that "there will be an integration of cultural and ideological influences that result in a unique value system that borrows from both national culture and economic ideology" (Ralston *et al,* 1997, p183).

Drawing on these ideas of cross-cultural management and relating these to my own experiences of working with governments in the developing world in countries such as Indonesia, Pakistan, China and Egypt, as well as India, it would appear that some institutions are ill-equipped to effectively manage the complexities of running public services such as water supply, on a large scale. This could be said of KWA, which is tasked with the development of water resources, construction of new schemes, and the operation and maintenance of existing schemes covering a population of more than 32 million (which is growing at an alarming rate). In an industrialised country such as the UK for example, it would be inconceivable that a single organisation could be tasked with a responsibility of this magnitude. There are a number of reasons in support of delegating responsibility: for example, a) devolving responsibilities to empowered local managers can speed up the decision-making process, b) reducing geographical spread and scale of operations can simplify administrative and logistical complexities, and c) devolved management would require smaller scale institutional infrastructure. However, despite reforms that call for decentralisation and thus management of schemes at a local level,

KWA has not complied with mandated requirements to transfer ownership and O&M responsibility for more than 1,000 small schemes in rural areas (Government of Kerala, 2002).

It is evident from literature (Stacey 2001; Asian Development Bank, 2003; United Nations Development Programme, 2003a; Greif, 2006) that in order for organisations undergoing development to build capacity at an institutional level, organisations need to improve capacity to improve itself. I drew on this literature in devising my approach (detailed in Chapter IV), which is based on the notion that KWA can improve its capacity to improve itself through an experiential learning process (elaborated on in Chapter V).

Key points, concerning the conceptualisation of institutional-strengthening and capacity-building of relevance to Kerala, raised in the literature reviewed in this section, are:

- Issues considered to be complex and messy that require inter-relationships of issues and problems to be explored, require understanding of cultural norms and methods of investigation and engagement that are appropriate to the local context (Taylor, 1996; Jacobs, 1996; Abrams, 1997; Ongaro, 2004; Nidumolu *et al,* 2006)
- Based on the premise that organisations are made up of individuals bound together by common purpose to achieve certain objectives, facilitating a process that builds individual and collective capacity can reinforce that purpose (North, 1993; Greif, 2006)
- Capacity-building interventions that aim to address the gap between the initial or inherent capacity of an individual or organisation and the capacity threshold desired, requires understanding of local situated knowledge and value systems prevalent within the organisation undergoing development (Mentz, 1997)

Based on the above and building on the insights of Abrams (1997), Mentz (1997) and Nidumolu *et al* (2006) into building capacity, the workshops described later (see Chapter

V), were devised to encourage participation, open discussion and debate about collective problems and how they could be tackled, with the underlying aim of building capacity through a process of action and learning. Building institutional capacity in the Kerala context requires an appropriate policy and legal framework (for organisational autonomy and financial viability) to enable KWA to meet its service obligations (see section II.3.2).

III.2.2. Water Management and Governance

The Government of Kerala and the agencies responsible for water resources are expected to provide effective water management and governance. In this section I discuss what this means in conceptual terms, drawing on literature about different approaches to water management.

As discussed in Chapter II, the volume of water supplied in Kerala has not kept up with population growth and demand. Some of this demand could be met through the use of 'demand management approaches'[11], which is high on the Government of India reform agenda (Shirley, 2002; World Bank, 2002; Pushpangadan, 2003). In the case of Kerala, however, in its rush to increase water availability through infrastructure projects (Alam, 2003; Government of India, 2009; Government of Kerala, 2012), KWA has neglected to a large degree the potential benefits of demand responsive approaches (Government of Kerala, 2002). Concentrating on infrastructure projects is perhaps not surprising in an organisation such as KWA that is run by engineers, and which has a long history of implementing infrastructure projects. Having said that, in order to narrow the gap between supply and demand, infrastructure projects to increase water into supply are still needed as demand-responsive approaches alone will not resolve the imbalance (De Seta, 2005).

There is growing recognition of the need to consider water management and governance issues from multiple perspectives (Capra, 1996; the Global Water Partnership, 2000a;

[11] In this context, 'demand management approaches' refers to demand responsive management, i.e., participatory approaches, community mobilisation, and self-management, to reduce the demand for water. In general terms, demand driven or demand management approaches also refers to aspects such as water conservation, rainwater harvesting, water reuse, etc. Source: Government of India, 2008a.

2000a; Shiva, 2005b; Hodgson, 2006). This recognition is often framed as a systems perspective, which is discussed further in section III.3. This perspective suggests that strengthening the capacities of those within the organisation to think systemically, i.e. to take interconnected contextual factors into account, can help organisations explore possibilities for improving water management and governance through integrating rather than separating the needs of society, ecosystems and the environment. Shiva (2005b) for example, describes the principles of inclusion, non-violence, reclaiming the commons, and freely sharing the earth's resources for creating what she calls "earth democracy". She argues that as the dominant (market) economy myopically focuses on the working of the market, it ignores both nature's economy and the sustenance economy, on which it depends.

Postel (2008) similarly suggests that water resource and ecological problems are to do with modern society's disconnection from nature's web of life, and from water's most fundamental role as the basis of that life. "In our technologically sophisticated world, we no longer grasp the need for the wild river, the black water swamp, or even the diversity of species collectively performing nature's work. By and large, society views water in a utilitarian fashion - as a 'resource' valued only when it is extracted from nature and put to use on a farm, in a factory, or in a home". She advocates the adoption of a water ethic that shifts away from the strictly utilitarian approach to water management, to one that has an integrated, holistic approach that views people and water as interconnected parts of a greater whole. "Instead of asking how we can further control and manipulate rivers, lakes, and streams to meet our ever-growing demands, we would ask instead how we can best satisfy human needs while accommodating the ecological requirements of freshwater ecosystems" (*ibid.*, p 22).

Postel's (2008) views on water ethics are highly significant when looking to understand the issues related to IWRM, especially with regard to viewing people and water as

interconnected parts of a greater whole. Considering such interconnections through Postel's work, influenced my choice to use systems approaches to explore socioeconomic and ecological issues in the workshops (see Chapter V and Appendices 2 - 5).

Much has been written on water management and governance in development contexts, and what does and does not constitute good practice, especially in relation to reforms (Asian Development Bank, 2003; World Water Council, 2003; World Bank, 2010). Much of this relates to India and the Keralan context in terms of encouraging participation in decision making and in mobilising communities to self-manage water supply schemes tailored to local needs (Government of Kerala, 2002; Government of India, 2003). The Asian Development Bank, The World Bank, The International Water Association, The United Nations Environment Programme, and others, to quote a few, provide development assistance and best practice guidelines, and models that have increasingly had to be tailored to local conditions in order to be accepted, with potential to lead to lasting success in terms of sustainability (Polidano, 1999a, 2001; Water Engineering & Development Centre, 2000; United Nations Environment Programme, 2002a).

Medoff and Sklar (1994) suggest that "the right model for any community can only emerge from a community process. It cannot and should not be imported or imposed . . . community development must begin by recognizing and reinforcing the resources within the community" (*ibid.,* p264). Singh (2003) backs this up by providing compelling evidence as a result of an ethnographic study in rural India. She suggests that "modern water management initiatives that are globally manufactured[12] are implementable in local

[12] Here Singh is referring to the fact that 'best practices' or technologies used in the water sector in developed countries may not be appropriate, and therefore cannot simply be transferred or imposed in development situations. For example, the use of certain technologies may be too costly or complex in terms of local needs. In India, where labour is relatively cheap, State Governments are keen to continue with labour intensive technologies or work practices (that would be considered inefficient in developed economies) as this satisfies their need to provide gainful employment (government has a responsibility to allocate jobs to certain castes, tribes and 'backward classes' in government establishments) rather than minimise costs. This is in contrast to developed countries where labour costs are relatively high and therefore the use of highly- automated technologies to minimise costs is considered a priority. Source: After Singh (2003).

communities, providing that local situated knowledge and practices are considered when designing workable, socio-economically viable, community-based solutions to resource management problems" (*ibid.,* p1). This emphasises 'softer' more people-oriented and often undervalued interrelated dimensions that require sensitive attention, to ensure active involvement and long-term sustainability of the systems adopted (Adman & Warren, 2000; Purnomo *et al*, 2004). However, the participatory route is not an easy option and is often instigated by a 'felt need' (Chackacherry, 2003); the gravity of which often determines the level of participation (or agitation) to redress or resolve a problem situation. There is much history of civil society in India mobilising with common purpose against issues related to water governance, especially in relation to water containment (dams) or diversion (irrigation) projects, often within or across water basins or catchment areas (Jain, 2001; Rangachari, 2001; Shiva, 2002; Sharma, 2003; D'Souza, 2003).

Further afield, Sylvia Horton (Horton, 2003), from Portsmouth University, looked at changes experienced in Europe by public sector organisations during the last 20 years of the twentieth century, when they were being transformed from a bureaucratic system to a market-oriented results-driven system. She states that "the need for participation, empowerment and involvement of staff began to pervade the thinking of public managers, and there was a move away from old hierarchical command structures in the public sector in order to create more fluid, responsive organisations" (*ibid.,* p404). She goes on to suggest that "participation and involvement are essential for democratisation of new public management" (*ibid.,* p408). I draw on Horton's (2003) findings as these closely correlate with those of the Indian public sector reforms agenda (Government of India, 2008a) and are highly significant to the Keralan context.

But involvement alone is not enough without the requisite skills for effective participation. Chackacherry (2004), for example, suggests that amongst the facets that contribute to successful, long-term viability of self-managed supply schemes (as advocated for Kerala,

for single-source rural schemes to be handed over from KWA to local bodies) is that in the first instance "the gravity of the felt need is the most important motivating factor for user cohesion, and in turn, efficient community management" (*ibid.,* p11). Water source sustainability, organisation and technical skills, ensuring equity and economic viability, as well as taking a demand-driven approach, are cited as some of the essential 'ingredients' for improving participatory schemes. Here, Chackacherry was referring to the socio-economic aspects of water supply in Kerala, and the fact that community participation is a necessary and essential aspect of developing, managing and sustaining water supply schemes. In conducting an extensive review of a number of community-managed schemes, Chackacherry (2003) further reveals that "social organisation skills on the part of the support agency, for example, listening, empathising, involving and respecting inherent skills and social customs, as well as on the part of the beneficiaries, for example, co-operation, efficacy, inclusiveness, and respect of marginalised groups, are crucial to effective self-managed schemes" (*ibid.,* p6). He also lists homogeneity of the community, strong and motivated leadership, effective communication and transparent accounting, as essential skills. The process of democratisation, however, can often be hampered in the Indian context through political interference. Chackacherry's research analysed a number of rural irrigation and water supply case studies under various support agencies in different regions of Kerala, where community participation was an element. By means of practical research, he established that political interference from government officials weakens participatory activities of farmers, but for those that do get involved with government-run irrigation schemes, "the intensity of participation of farmers in irrigation management is directly proportional to the assurance of water supply" (*ibid.,* p10). However, once government support has been withdrawn, systems often fall into disrepair due to unsustainable practices, or lack of expertise, even when capacity-building measures had been imparted (Chackacherry, 1993).

Building on the notion of sustainability, Jacobs (1996), for example, stresses the need for participation and joint implementation. Jacobs' research of British aid projects in Nigeria, resulted in the development of a 'best practice model' to explain the relationship between donor and recipient institutions. The model (Figure 11) was put forward as "a practical corollary to concepts of the 'learning organisation' developed by Western management theorists" (*ibid.*, p29). The model emphasises the importance of an enabling environment, and the need for participation - aspects that can sometimes be overlooked in the development context.

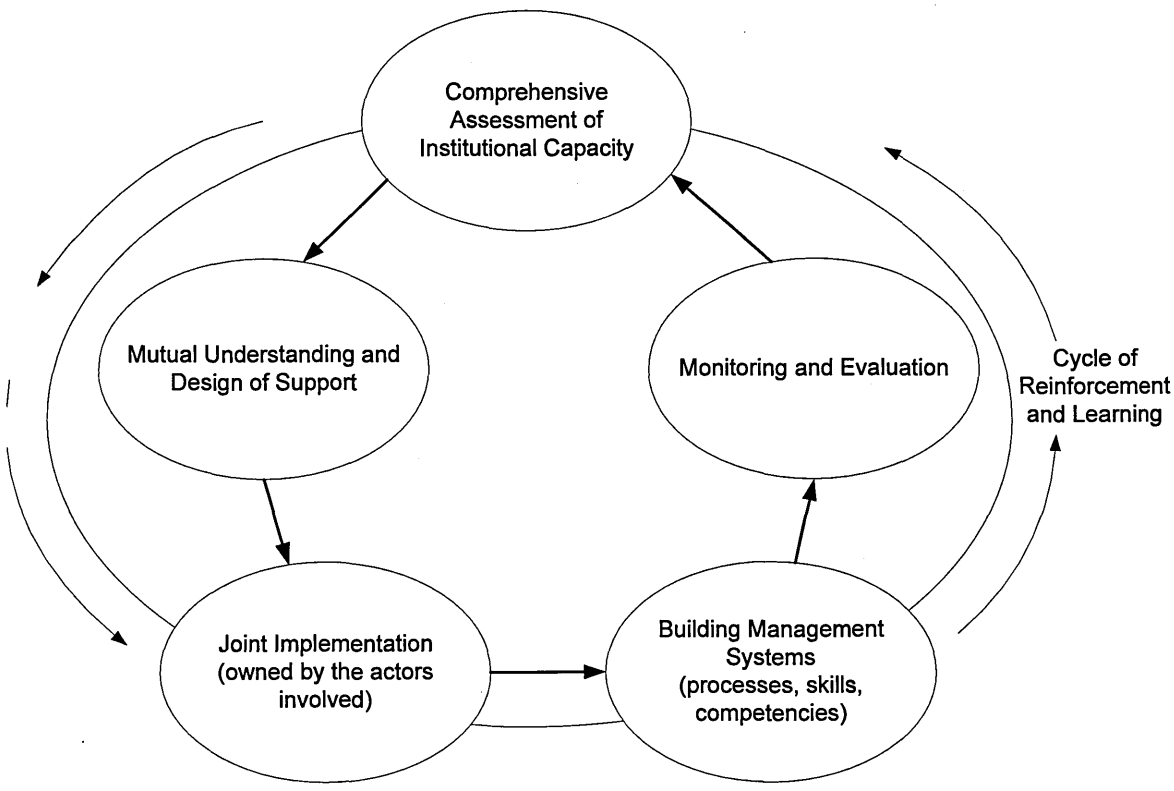

Figure 11 Best Practice Model

Source: after Jacobs, 1996, p17

In developing his model (influenced by the work of Kotter and Schlesinger (1979), and Nadler (1947), theorists in the field of behavioural science with regard to resistance to change), Jacobs (1996) considered five key stages (as depicted in Figure 11), as essential elements through which a project must pass if it is eventually going to be successful (*Ibid.*, p15). Jacobs' Best Practice Model and the STAIR Model (strategy, targets, assessment,

implementation, results) developed by Zeppou & Sotirakou (2003) as well as Checkland's Mode 1 step-by-step version of soft systems methodology (SSM)[13] (see section III.3.3), influenced the methodology devised for my inquiries (described in Chapter IV) and later the development of my own approach (detailed in Chapter VI).

Key points I draw from the literature concerning the conceptualisation of water management and governance of relevance to Kerala, are:

- Engaging with systems traditions can help organisations undergoing development improve water management and governance through an integrated approach which balances the needs of society, ecosystems and the environment (Shirley, 2002; Ongaro, 2004; Hodgson, 2006; Postel, 2008)
- Water management and governance that combines demand responsive approaches with supply-side approaches can help ensure water availability for all (Alam, 2003; Shiva, 2005a; Government of India, 2009, Government of Kerala, 2012)
- Governments that mobilise civil society and encourage active participation and ownership by all stakeholders, can help ensure sustainability for future generations, providing approaches are tailored to local conditions and local needs (Polidano, 2001; United Nations Environment Programme, 2002a; Singh, 2003; Purnomo *et al*, 2004; Government of India, 2008a)
- The sustainability of collective approaches requires appropriate systems and capacity development measures, as well as on-going support (Chackacherry, 1993; Jacobs, 1996, Government of Kerala, 2002)

III.3. Participatory Systems Approaches and Systemic Organisational Learning

The kinds of issues and questions I am addressing are characterised as interconnected, complex, messy, and interdependent, and involve multiple-stakeholders, which requires

[13] 'Soft' systems approaches are generally based on techniques used to tackle complex systems that cannot easily be quantified; especially those involving people holding multiple and often conflicting viewpoints. Soft systems methodologies can address qualitative as well as quantitative dimensions of problem situations. Source: Checkland, 1981.

systems thinking that enables inter-relationships of issues and problems to be explored (Checkland & Poulter, 2006, 2010; Bosch *et al*, 2007; Baxter & Sommerville, 2008). However, there are many different kinds of systems theory and approach (Ramage & Shipp, 2009; Reynolds & Holwell, 2010). In developing a conceptual framework for this research, I explored a wide range of different systems theories and approaches, for example; General Systems Theory (Lewin, 1948; Bertalanffy, 1968), Second-order Cybernetics (Forester, 1984), Critical Systems (Jackson, 1985; Flood, 2010), Applied Systems (Checkland, 1981; Open University, 2011) and Social Systems (Vickers, 1965; Churchman, 1982). Whilst I was influenced by second-order cybernetics, I chose SSM over critical systems heuristics because of the apparent appropriateness of a focus on 'soft systems' in the context of my chosen Keralan situation, and the need for methodology rather than heuristics in my research. I also explored some traditions of organisational development and stakeholder involvement and interaction that do not claim to be systems approaches but do claim to be systemic (Chambers, 1994; World Bank, 1996; Shiva *et al*, 2004; Reisman & Oral, 2005; Williams, 2009).

As a result, I identified two particular traditions as most relevant to my research contexts: participatory systems approaches and systemic organisational development and learning. Each will be discussed below.

III.3.1. Participatory Systems Approaches

Based on my review of relevant literature I identified that participatory systems approaches have two main distinguishing features:

1. Participatory means that people work together towards common purpose and shared goals through a process of self-organised and/or facilitated interaction. The premise is that active participation that encourages multi-stakeholder perspectives can generate valuable discourse and rich information to bring clarity to complex problem situations (Gregory, 2000; Ison & Russell, 2000;

Stacey, 2001; European Commission, 2003; Bosch *et al*, 2007; Ison, 2008; Joshi & Huirem, 2009; Batts, 2012).

2. 'Systems' recognises that the interconnectedness of the parts (departments or sub-systems) that make up a wider organisational system, results in the emergent properties of the whole being different to the sum of its constituent parts (Capra, 1996; Hodgson, 2006; Senge, 2006; Cummings & Worley, 2009)

Participatory and systems approaches do not come from two completely separate traditions and participatory systems approaches represents the overlap between them. This overlap is not a clearly defined area as approaches can be used in a range of different ways.

Participatory approaches that are also intended to be systemic stress the importance of taking local people's perspectives into account, and in giving them a greater say in planning and managing the outcomes of the participatory process (World Bank, 1996; European Commission, 2003; Bell & Morse, 2010; International Institute for Environment and Development, 2011). A key purpose of participatory approaches is to enhance community and organisational capacity-building through fostering interactive participation and self-initiated mobilisation and collective action (Office of Evaluation & Strategic Planning, 1997; Chackacherry, 2003; Shiva *et al,* 2004; Joshi & Huirem, 2009). In the community-based approaches often associated with development contexts, local people (as a unitary whole) tend to be the primary focus. For example, the Watershed Organization Trust[14] devised an approach (Participatory Net Planning (PNP)), that has extensively been applied in India since 1995, as a "gender-sensitive planning, mobilisation, project formulation and training tool that is locale-specific, puts stakeholders at the centre of the process, and engages them in a dialogue to arrive at optimal choices" (Joshi & Huirem, 2009, p7).

[14] The Watershed Organization Trust (WOTR) is an Indian NGO (non-governmental organisation) founded in 1993 and operating in five Indian states. WOTR is recognized widely as a premier institution in the field of participatory watershed development and climate change adaptation. Source: http://www.wotr.org/ [12.01.13]

Participatory methods have also been designed to engage staff in assessing the effectiveness of their own organisation and in working out how it can be improved (Checkland & Scholes 1999; Adman & Warren, 2000; Williams, 2009). In the context of climate change adaptation, Collins & Ison (2009) argue that "whilst the imperative for participation has increased, critical engagement with understandings and the epistemologies[15] of participation and the practices that result has lagged,...attention has remained focussed on developing better techniques, tools and mechanisms for participation". They contend "there is a lack of corresponding inquiry into the epistemologies that underlie how participation is being conceptualized in policy-making processes for climate change adaptation" (*ibid.,* p359). Collins and Ison's argument is important here because, as discussed later in this section, lack of epistemological awareness can limit how systems approaches are used.

Rapid rural appraisal (RRA) is one participatory systemic tradition that has been used both in community and organisational contexts (Chambers, 1994; Bell, 1999; De Seta, 2005). RRA first emerged in the late 1970s, spearheaded by Robert Chambers (1994) at the University of Sussex, in response to lengthy assessment methods used on development projects. RRA uses a number of techniques and tools to quickly seek local information and insight about a project or situation from local people. Over time, RRA sought to be more participatory in the collection of information by involving local people in data-gathering and analysis, through the use of methods such as mapping, transect walks[16], scoring and ranking. The various tools which are qualitative in nature (methods that minimize the use of numerical analysis, such as interviews, observation, testimonials, and other methods to elicit information from stakeholders) can be combined with quantitative methods.

[15] "Epistemology is the study of how we come to know; within second order cybernetics knowledge is not something we have but arises in social relations such that all knowing is doing. From this perspective epistemology is something practical that is part of daily life". Source: Ison, 2008, p151.

[16] Transect walks are walks that an individual or teams take in order to observe people, surroundings and resources. It is a spatial data-gathering tool. Source: http://gip.uniovi.es/docume/notasob.pdf [21.03.12]

Information obtained in this way can help to clarify and validate data (World Bank, 1996). As the emphasis shifted from collecting data to the involvement of end-users, and in learning from the experience, RRA moved to 'participatory learning and action' (PLA) (Pretty *et al*, 1995a). In contemporary evaluation practice, PLA tries to facilitate local people to develop their capabilities. The emphasis is on participation as a systemic learning process linked to action and change (Gregory, 2000; Ison & Russell, 2000; Bunch, 2003; Ison, 2008). PLA activities have been undertaken in over 130 countries by development practitioners, NGOs and donors (World Bank, 1996; Department for International Development, 1997; European Commission 2003; International Institute for Environment and Development, 2011).

Other participatory approaches that are intended to develop systemic appreciation of situations have focused more on monitoring and evaluation. These approaches have been mainstreamed in many international development agencies. Such agencies include the World Bank, Unites States Agency for International Development (USAID), Department for International Development (UK) (DFID), and United Nations Development Programme (UNDP) amongst others, as well as the Japanese Bank for International Cooperation (JBIC) - the funding agency for the KWSP. The approaches used by these agencies have enabled the voices of local people to be heard, whilst allowing for people's analysis of their own conditions. The World Bank Participation Sourcebook (World Bank, 1996) provides an overview of the Bank's experience, as well as methods and tools that enable marginalised groups including the poor to participate. The Sourcebook highlights a number of key issues of relevance to those seeking a participatory approach (*ibid.,* pp2-6):

- Participation means opening up the design of the process to include those most directly affected and giving the intended beneficiaries the chance to speak out about local impacts

- Negotiation is necessary between the different stakeholders to reach agreement about what will be monitored and evaluated, how and when data will be collected and analysed, what the data actually means, and how findings will be shared, and what action will be taken
- Learning should focus on cumulative learning by all participants as the basis for subsequent improvement and sustained action. This includes local institution building or strengthening, thus increasing the capacity of people to initiate action on their own
- Being flexible is key to adapting to the wider external environment and to local conditions and actors, as these factors change over time

A wide range of participatory approaches are in use, including those used for monitoring and evaluation, many drawn from developing-world contexts and adapted to new needs and settings. These have been categorised by Pretty *et al* (1995a) into four main classes:

1. Group and team dynamics
2. Sampling
3. Interviewing and dialogue, and
4. Visualisation and diagramming

Some methods used in participatory approaches are typically rapid appraisal and assessment methods (observation, semi-structured interviews, transect walks), and others are typically participatory learning and action methods (participatory mapping, diagramming, making comparisons etc.). But each can be used for data collection or for empowering participants. Considering Pretty *et al's* (1995a) categories in turn: (i) Methods to do with group and team dynamics are aimed at building effective interdisciplinary teams, which are able to work closely together, approach a situation from multiple perspectives, and negotiate with relevant stakeholders. (ii) Sampling ensures that multiple perspectives are represented, including those from the poorest and most

disadvantaged sectors of the community, although representative mechanisms may be an inadequate means of reflecting community diversity. (iii) Participatory methods are those that foster a sensitive and mutually beneficial dialogue (Gregory, 2000). At an individual level, semi-structured interviews that appear informal and conversational help to reduce the social distance between evaluator and interviewee. There is also a host of techniques that are aimed at facilitating social and collective dialogue and engagement, such as community meetings, citizen learning teams, and community appraisals (Holland & Blackburn, 1998). (iv) Diagramming and visual construction involves group animation and exercises to facilitate information-sharing and collective appraisal. These more creative methods seek to draw on local knowledge and perspectives using categories, criteria and symbols that are relevant for participants. Participatory mapping and modelling, activity profiles, time lines and local histories, and guided visualisation, are some of the techniques used in community settings (Slocum, 1995; Pretty *et al,* 1995b; Open University, 2006). Batts (2012), for example, used participatory three-dimensional modelling on a climate change adaptation project in rural Madhya Pradesh, India, as a community mapping tool that combined indigenous spatial knowledge with topographical and other geophysical information to produce a scaled-relief model of the local domain. The tool theoretically empowers indigenous communities with a voice in the legislative planning and management of natural resources (*ibid.,* p5).

Key points concerning participatory approaches that are raised in the literature of relevance to Kerala are:

- Participatory approaches can build trust, rapport and understanding between stakeholders that are open to multiple perspectives, knowledge and influences (Gregory, 2000; International Institute for Environment and Development, 2011).

- Participatory approaches can ensure that the perspectives and realities of intended beneficiaries are adequately reflected (World Bank, 1996; Joshi & Huirem, 2009)).
- Participatory approaches allow different stakeholders and especially those whose voice may be marginalised, to articulate and present their needs, interests and expectations (Holland & Blackburn, 1998; Batts, 2012).
- Participatory approaches foster ownership and can increase the prospects for sustainability of outcomes (Department for International Development, 1997; European Commission 2003).

Many critiques have been made of participatory approaches on the grounds that:

(i) They focus on consensus (Gregory, 2000; Rowe & Frewer, 2000, 2004, 2005; Connelly & Richardson, 2004; Williams, 2009)

(ii) Scaling-up and sustainability can be problematic because of institutional constraints (Paramasivan, 2000; Government of Kerala, 2002; Woodhill, 2002; Chackacherry, 2003; Lockwood, 2004; Shiva *et al*, 2004)

It is recognised that participatory approaches which rely heavily on building consensus, can be problematic. For example, Connelly and Richardson (2004), suggest that "consensus rarely, if ever, emerges unproblematically since in any real situation practical constraints and tensions between different goals lead almost inevitably to compromising the ideals of inclusivity and non-coercion. These inevitable steps away from *ideal* consensus towards a more *practical* consensus involve a series of critical decisions which necessarily lead to the exclusion of some of the potential participants, interests, issues, actions and/or substantive outcomes" (Connelly & Richardson, 2004, p4). It is also recognised that participatory approaches can be problematic in terms of scaling-up and/or sustainability. For example, Lockwood (2004) suggests that whilst there is evidence that participatory approaches can deliver benefits to the communities they serve, scaling-up

can be a problem, "knowing the right way forward is one thing, but achieving the rate of progress needed is another" (Lockwood, 2004, p1).

These criticisms of participatory approaches are mostly associated with their limitations in terms of taking a systemic perspective, hence my interest in approaches that are both participatory and systemic.

Systemic approaches are those that draw on systems thinking and practice. There is a broad range of systems approaches that can be reviewed by considering some of their history.

Austrian biologist Ludwig Von Bertalanffy (1976) is credited with envisaging 'general systems theory' as a high-level language in which different problem situations from different disciplines can be defined and solved. A 'system' was thus defined as an 'adaptive whole'.

There is wide recognition that systems thinking (ST) can help achieve a clearer understanding of complex organisational and managerial issues (Checkland, 1981; Khisty, 1995; Checkland & Scholes, 1999; Chapman, 2002; Reisman & Oral, 2005). Within the realms of Operational Research (OR) and Management Science (MS)[17], systems thinking, as a concept, and as a methodology, for solving managerial problems has been around since the mid-1950s (Vickers, 1965; Ackoff, 1974; Churchman, 1982). Ackoff helped to establish the Operational Research (OR) movement and as early as 1957 highlighted the potential for OR to contribute to raising living standards in the Third World (as the developing world was referred to then). However, he became increasingly critical of the ability of technique-dominated OR models to adequately incorporate systems thinking ideas when researching social systems (Ackoff, 1961, cited in Kirby & Rosenhead, 2008).

[17] The terms OR and Management Science (MS) are often used synonymously and refer to methods used to help organisations achieve goals such as maximising profit or production output, or minimising losses, risk, etc., through the use of mathematical modelling, simulation, statistical analysis, etc. The field of OR generally relates to industrial engineering and the use of tools to improve manufacturing processes, and the field of MS generally relates to the problems of business management. Source: Pidd *et al,* 2005.

"Systems thinking is an approach to problem-solving that views problems as parts of an overall system, rather than reacting to present outcomes or events, and potentially contributing to further development of the undesired issue or problem" (O'Connor & McDermott, 1997, p11). Systems thinking can also be thought of as a framework that is based on the belief that the component parts of a system can best be understood in the context of relationships with each other, and with other systems, rather than in isolation. The only way to fully understand why a problem or element occurs and persists is to understand the part in relation to the whole (Capra, 1996). Reisman *et al* (1972) define a system as "a set of resources – personnel, materials, facilities, and/or information – organised to perform designated functions, in order to achieve desired results" (*ibid.,* p2). In simple terms, therefore, systems thinking can be described as a process of thinking systemically which involves paying attention to the dynamic interaction among the resources and the environment in which the system operates. Reisman & Oral (2005), later go on to argue that whilst modern proponents of systems thinking (referring to Checkland and Scholes, 1999), distinguish between 'soft' systems methodology (SSM) and the time-honoured, 'hard' systems methodology (HSM)[18]; both have been around for a long time and used in a complimentary, rather than mutually exclusive, way in OR and MS. Checkland and his associates developed and popularised Soft Systems Thinking (SST) through a methodological approach now mainstreamed as SSM, claiming that this was brought about because classic systems engineering failed to tackle 'rich' management situations. Having researched the co-existence of both methodologies, Reisman & Oral (2005) offer compelling evidence that SST had been around for quite some time (without so calling it, in the pioneering days of OR/MS), before Checkland made the distinction between the two. The complimentary use of hard and soft systems approaches is supported

[18] 'Hard' systems approaches involve the techniques of OR (mathematical modelling, simulations, systems engineering, statistical analysis, etc.), useful therefore for problems that can be quantified, but cannot easily take into account unquantifiable variables such as opinions, cultures and politics, and therefore tend to treat people as being passive to the problem situation. Source: Reisman & Oral, 2005.

by others (Presley, 2002; Brown & Cooper, 2004; Pidd *et al,* 2005; Brown *et al,* 2006). I take SST and Hard Systems Thinking (HST) to be complimentary, whereby SST can be particularly useful in the early stages of addressing intractable management issues and HST in the latter stages of 'solving' well-defined problems (as suggested by Reisman & Oral, 2005 and the Open University, 2011).

Whilst the complimentary nature of hard and soft systems approaches has its merits, there are nevertheless fundamental differences between the two. These differences mean that they are suited to exploring different kinds of situations. In general terms, each can be described in terms of the characteristics that prevail within systems that are either 'closed' or 'open' in nature, as depicted in Figure 12.

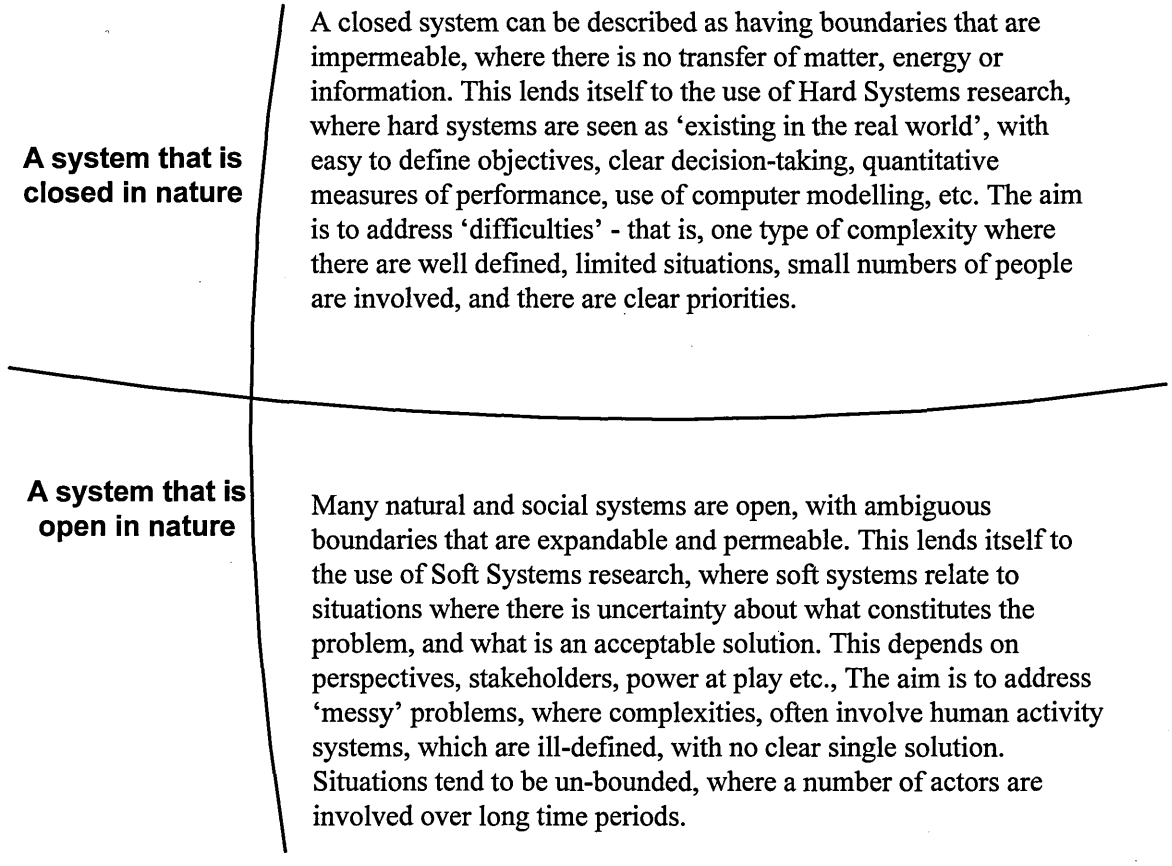

Figure 12 Differences between systems considered to be open or closed in nature

Source: this thesis, drawing on Checkland, 1981 and Reisman & Oral, 2005.

For purposes of applying systems approaches a system can be defined as an inter-connected set of components which behave as a whole in response to forces or stimuli to any part of it. In systems terms, an organisational system can be thought of as 'open' in nature, and the system as a whole, greater than the sum of its parts (after Kast & Rozenzweig, 1974). In reviewing this approach in relation to participatory approaches, a number of aspects related to systems thinking would need to be considered to ensure that those involved within the perceived system had a say in how this system was defined and improved. Drawing on my experience of projects as well as the experiences of others from literature (Checkland & Poulter, 2006; Bosch *et al*, 2007; Baxter & Sommerville, 2008), opportunity for active involvement and participation can be achieved through appreciating the differing perspectives and 'world views' of the actors involved[19]. Providing opportunity for participation would require an appropriate methodological approach that values multiple perspectives, such as Checkland's SSM.

Checkland developed SSM through more than 30 years of action research since 1972, and is still active in the field (see Checkland & Poulter, 2010). He describes the development and use of SSM in his early work (Checkland, 1981), and later with Scholes (Checkland & Scholes, 1999), as well as in a number of academic papers. According to Checkland (1981), "the methodology is taken to be a process of social inquiry which aims to bring about improvement in areas of concern by articulating a learning cycle (based on systems concepts) which can lead to action" (*ibid.*, p40). He provides three key thoughts:

1. Move away from the idea of a real-world system in need of repair or improvement to one of action research, where people are attempting to conduct purposeful action which is meaningful to them. This leads to the idea of modelling 'purposeful activity systems'

[19] Checkland (1999) calls this '*Weltanschauung*', which signifies the fact that each of the various actors involved in the system will have a different perspective, or 'world view', which is based on their perception of the system, the problems within it, and therefore, the possible solutions that might be needed to improve it. Source: Checkland, 1999.

2. In building models, the perspective or viewpoint from which the models will be based (the world view or *Weltanschauung*) is important; and
3. SSM is an 'inquiring process' which establishes the distinction between hard and soft systems thinking, and emerges as an on-going organised 'learning system' where desirable and feasible outcomes would lead to improvements to the problem situation.

These thoughts are highly relevant to the contextual setting in which I had based my inquiries, and influenced my research design (outlined in the next chapter). Checkland distinguishes between hard and soft systems thinking as follows: "in hard systems thinking, the observer uses a systematic approach to solve problems in the real world which he sees as systemic. Soft systems thinking on the other hand, uses a 'learning system' approach to real-world messy complex problems by using a systemic process of inquiry" (Checkland 1981, p11). The inquiring/learning cycle of SSM evolved from the original "seven-stage model" (*ibid.,* p163), to a four-activities model consisting of the following stages :

1. Finding out about a problem situation
2. Formulating purposeful activity models
3. Using the models to debate feasible and desirable change
4. Taking action to bring about improvement

Checkland was influenced by Vickers (1965), who wrote about 'the social process' and expressed his 'theory of appreciation' as an inquiring system[20], describing SSM as "a systemic learning process which articulates the working of 'appreciative systems' in Vickers' sense" (Checkland, 1981, p41). Hodgson (2006) expresses similar views to those of Vickers (1965) and Checkland (1981) with regard to systems approaches as a procedure

[20] "Appreciation manifests itself in the exercise through time of mutually related judgements of reality and value. Such judgements disclose what can best be described as a set of readinesses to distinguish some aspects of the situation rather than others, and to classify and value these in this way rather than in that. I will describe those readinesses as an appreciative system". Source: Vickers, 1965, p67.

for inquiry into complex messy situations. Hodgson (2006) describes the qualitative aspects of systems approaches as "a philosophically robust procedure for inquiry into complex messy situations. It cultivates our appreciative system as a skill of purpose and participation. It works on any level or recursion, and is true to the notion of whole system" (*ibid.,* p22). Hodgson's views are of particular relevance to this study from a perspective which emphasises the discovering nature of participative approaches based on qualitative social and discursive aspects of inquiry into human activity systems, which is discussed further in section IV.3.

SSM uses the idea of 'systems' as a construct - "hard systems thinking assumes system models to be models of the world (ontologies) and soft systems thinking assumes system models to be intellectual constructs (epistemologies)" (Ison, 2008, p148). Ison (2008) elucidates how systemic and systematic thinking and practice are different - "these are the two adjectives that come from the word 'system' but they describe quite different understandings and practice. These differences are associated with epistemological awareness, which is required for moving effectively between systemic and systematic thinking and practice" (*ibid.,* p139). This epistemological dimension has become much more significant in more contemporary systems ideas and signifies a shift in thinking from a positivistic stance (theory of reality - ontology) to one which recognises that people have their own perspectives and can construct and develop their own knowledge. In other words, shifting from a mechanistic process of knowledge transfer, to a situation where knowledge is created from an on-going dynamic process of interaction (experiential learning process). This epistemological dimension has implications when doing research (such as mine) intended to be participatory and systemic where orchestrating a process of learning can lead to changes in understandings and practices as opposed to taking a mechanistic step-by-step approach to problem solving (see Chapter V).

The implicit value of SSM is that never ending learning is a good thing. Checkland and his research colleagues used SSM in practice for projects in the private and public sectors, with varying degrees of success in the organisations sponsoring the work (Checkland & Scholes, 1999). SSM has been applied in practice by many researchers and consultants in a number of disciplines, for example: education and training (Bell, 1999; Turner, 2008a), Civil Service (Horton, 2003; Turner, 2008b), the environment (Bosch *et al*, 2007; Evans *et al*, 2012), including water (Bunch, 2003; SLIM, 2004b; Nidumolu *et al*, 2006; Kayaga, 2008) etc., as a means of addressing complex, problematic situations involving human activity systems.

SSM can be used on its own or combined with other systemic approaches. For example, Bell (1999) combines the Kolb learning cycle (Kolb, 1984) as a "tool for comparison and SSM as a tool for analysis and agenda setting" for a training needs analysis in the education sector (Bell, 1999, p22). Bunch (2003) combines SSM with an ecosystems approach which emphasises the links between ecological and human components in the environmental sector. Khisty (1995) combines HSM and SSM to tackle ill-structured, messy engineering and planning problems in the transportation sector by viewing problem situations as human activity systems requiring rational intervention, rather than as engineering problems *per se*. Similarly Bosch *et al* (2007) combines methodological approaches in the natural resources field in order to improve sustainable land management practices.

Based on the experiences of the various practitioners' use of SSM described above and on the premise of learning through action, it appeared to me that SSM had two potential uses in my research - as part of my overall conceptual framework and as part of my methodology. The following claims in the above literature were of particular interest: that SSM offers the potential to:

- Address complex organisational and management problems holistically

- Identify and bring clarity to critical issues, and
- Accommodate different viewpoints as a basis for improvement

Schwaninger (1997), advises caution, and suggests that whilst most systemic methodologies dedicate an explicit component to the practical aspects of putting 'solutions' to work and for establishing a learning process, many organisations fail when it comes to implementation. "This can perhaps be explained by one dominant factor - insufficient care to understand the organisational context in which the problem and its 'solution' are embedded. Put bluntly, it would appear that problem-solvers tend to be focused on the problem whilst neglecting the context" (*ibid.,* p112). Considering solutions to problems are only as good as their implementation (as suggested by Schwaninger), SSM appears to be able to provide the focus needed for implementation of change initiatives whilst bringing clarity to unstructured, ill-defined complexities found within organisations. SSM also appears to be a 'vehicle' for generating enthusiasm for change providing there is sufficient understanding and appreciation of the contextual setting within the organisational environment (Bunch, 2003; Ison, 2008).

Key points concerning the conceptualisation of participatory systems approaches, from the above literature survey, are:

- Participatory systems approaches can provide the overarching methodology for change initiatives and can bring clarity to complex, problematic situation involving multiple stakeholders
- Participatory systems approaches emphasise the opportunity for learning of stakeholder engaged in an experiential learning process
- Participatory systems approaches can enhance organisational capacity providing the actors involved have sufficient 'voice' and varying perspectives can be accommodated as a basis for improvement. The matter of consensus has to be viewed with caution (Connelly & Richardson, 2004; Williams, 2009).

- The qualitative aspects of participatory system approaches as a procedure for inquiry into complex messy situations cultivates a sense of purpose and participation and is true to the notion of whole systems (Hodgson (2006)

These points are highly relevant to the contextual setting in which I base my inquiries. My own use of SSM as part of my methodology is described in Chapter IV (section IV.4).

III.3.2. Systemic Organisational Development and Learning

"Organisation Development (OD) relates to the field of applied behavioural science focused on understanding and managing organisational change to increase an organisation's effectiveness and viability, and to the field of scientific study and inquiry" (Francis *et al*, 2012, p31). At the core of OD is the idea of people working together towards shared goals, and therefore, in this context, development encapsulates the idea that organisations can become more effective over time in achieving their goals.

OD concepts encapsulate the notion that every part of an organisation is integral to a system that relies on and impacts other elements of the internal and external environment in which the organisation operates.

According to Senge (1990), "systemic thinking is the conceptual cornerstone of organisational development and learning. It is the discipline that integrates the others, fusing them into a coherent body of theory and practice" (*ibid.,* p12).

Richard Beckhard (1969), a pioneer in the field of OD, defines OD as "a planned, top-down, organisation-wide effort to increase the organisation's effectiveness and health, achieved through interventions in the organisation's processes using behavioural science knowledge. It is designed to bring about an end result based on organisational reflection, system improvement, planning and self-analysis" *(ibid.,* p114). OD can also be defined as "a system-wide application and transfer of behavioural science knowledge to the planned

development, improvement, and reinforcement of the strategies, structures, and processes that lead to organization effectiveness" (Cummings & Worley, 2009, p1).

There are a number of theories that can provide a solid foundation for OD interventions, for example:

- Complexity Theory with its focus on strategic management and how organisations can adapt (Stacey, 2001)
- Action Research Theory which includes problem solving actions alongside inquiry (Lewin, 1948, Freedman, 2011) and
- Change Theory concerned with the social environment as a dynamic field which impacts in an interactive way with human consciousness (Lewin, 1948; Smith, 2007).

OD interventionists need to be aware of the cross-discipline theoretical aspects associated with these theories to understand which tools to use to improve organisational effectiveness (Francis *et al*, 2012, p208).

Drawing on the existing body of knowledge within the OD field, as well as my own experience of OD projects over the past 20 years or so, it appeared to me that if those in an organisation can think systemically, the organisation can improve its capacity to improve itself. I base this on the premise that:

1. Any OD intervention must have people at its centre. OD is about allowing people in the organisation to create the change the organisation is looking for. OD is a holistic intervention, and therefore all those within the organisation should have a say in how the organisation develops over time (Francis *et al,* 2012, p218)
2. Any OD intervention should be sponsored by the senior management team of the organisation and change agents within the organisation need to become the centre of the intervention in order to ensure sustainability of outcomes and approach (*ibid.*, p228)

Within the context of my inquiries, for organisations looking to effect lasting change, OD concepts would need to be embraced as part of an on-going systemic process of action and learning which takes into account the interconnectedness of the sub-systems or groups within the organisation and the effect that one sub-system has on another (see Figure 13 below). My rationale for this is based on the notion of sustainability of learning outcomes. For example, according to Ison (2008) if an organisation can engage with an approach that fosters understanding of the interconnectedness of the actions and interactions that people and departments have on each other, over time it could provide the opportunity for the organisation to solve problems for itself through action and learning, or the experiential learning process.

According to Freedman (2011) "action learning (AL) provides the theory, methodology and skills that augment the practice of OD and change, and involves analysis and action and also learning. AL is most appropriate where the problem is complex, the desired outcome is vague, and the solution is uncertain or unknown. In addition, the problem should be complicated enough to provide learning opportunities, knowledge building, and the development of specialized skills" (*ibid.,* pp7-8).

In OD terms, learning is a characteristic of an adaptive[21] organisation, i.e., an organisation that is able to adapt to changes brought about through interactions from within or outside the organisation. In this sense a "learning organization is an ideal, towards which organizations have to evolve in order to be able to respond to the various pressures they face. It is characterised by a recognition that 'individual and collective learning are key" (Finger & Brand 1999, p136). Finger & Brand (1999) describe organisation learning as "the activity and the process by which organizations eventually reach the ideal of a learning organization" (*ibid.,* p136). Argyris & Schön (1978) suggest that "for

[21] Feedback loops represent a key feature of adaptive systems, allowing a response to changes in the system. Argyris & Schön (1978) were the first to propose models to facilitate organisational learning; and distinguished between single and double-loop learning where the second loop was used to question the values, assumptions and policies that led to the actions as a result of the first loop. Source: Argyris & Schön, 1978.

organisations to learn they must become adept at learning. They must become able not only to transform their institutions, in response to changing situations and requirements; they must invent and develop institutions which are 'learning systems', that is to say, systems capable of bringing about their own continuing transformation" (*ibid.,* p28). They define a learning organisation as "an organisation that actively creates, captures, shares and uses knowledge to adapt to a changing environment" (*ibid.,* p26). Beyond the level of the organisation this focus on 'adaptation' has increased in recent times particularly in the contexts of climate change and social ecological systems, where it has become a core concept often allied with complex adaptive systems traditions (e.g. Holling & Gunderson, 2002; Gunderson *et al,* 2006; Folke, 2006; Herrfahrdt-Pähle & Pahl-Wostl, 2012).

However, there does not appear to be consensus on the definition of a learning organization among theorists and practitioners. Garvin (2000) observed that "a clear definition of the learning organization has proved to be elusive" (*ibid.,* p9). Senge (1990), defines a learning organisation as "an organization where people continually expand their capacity to create the results they truly desire, where new and expansive patterns of thinking are nurtured, where collective aspiration is set free, and where people are continually learning to see the whole together" (*ibid.,* p3). According to Watkins & Marsick (1992), "learning organizations are characterised by total employee involvement in a process of collaboratively-conducted, collectively-accountable change directed towards shared values or principles" (*ibid.,* p118).

In becoming a learning organisation, Oracle, a major business software and hardware systems company incorporated knowledge management, innovation management and a corporate university into one initiative. "It provides an insight into measuring the impact on what are often intangible outcomes (or unintentional consequences), such as increased knowledge sharing and the added value of innovation" (Sumner, 2003, p2). Similarly, a learning initiative, integrating knowledge management at Tata Steel (India's largest steel

company) used an index based on the Balanced Scorecard to measure its many learning programmes. The Company spreads learning throughout the organisation through the use of "historians" who document the key lessons from task-force projects. All initiatives support one central goal: "when one person learns, the rest of the organisation learns with them" (*ibid.*, p2).

An alternative perspective on the theory and tools of knowledge management and systems thinking approaches to organisational learning is offered by Stacey (2001), who argues that "the creation of new knowledge, and thereby the process of organisational change itself, is to be viewed as a self-organised process of communicative interaction between individuals in an organisation" (*ibid.*, p23). From this, it follows that "organisational change cannot be designed by formulating new goals and designing paths on how to arrive at these goals; it is during the self-organising process among individuals that new goals are formulated and new knowledge is created to achieve these goals. Knowledge management should start from facilitating conversation about what people are doing at present, rather than discussing what goals should be met in a yet unknown future of the organisation" (Ebbin, 2004, p107).

Similarly, based on their study of attempts to reform the Swiss Postal Service, Finger & Brand (1999) conclude that "it is not possible to transform a bureaucratic organization by learning initiatives alone. Referring to the notion of the learning organization can make change less threatening and more acceptable to participants. However, individual and collective learning which has undoubtedly taken place has not really been connected to organizational change and transformation" (*ibid.*, p146).

Both Argyris (2004) and Senge (2006) argue that learning is guided by practices rather than theoretical knowledge. In this sense, "theoretical knowledge is not learning unless it is transformed into practice: we do not learn, unless we change our behaviour" (Argyris, 2004, p4). But Senge (2006) goes even further: "learning is not an individual behavioural

attribute, but a 'double-loop' and shared cognitive learning process that can change organizations by changing our mental models" (*ibid.*, p384).

Key points from the above concerning the conceptualisation of systemic organisational development and learning are:

- People are at the core of organisations, and organisations can develop through people working together towards shared goals
- Learning and knowledge creation at an individual and organisational level can be achieved through a process of self-organised interaction

III.3.3. Synthesis of Participatory Systems Approaches and Systemic OD and Learning Ideas

Systems approaches to studying organisation and management behaviour (Vickers, 1965; Ackoff, 1974; Churchman, 1982; Checkland & Scholes, 1999; Reisman & Oral, 2005; Kirby & Rosenhead, 2008) are broadly based on the premise that individual components of an organisation cannot be understood out of their broader context and the whole organisation is different from the sum of its parts. Kast & Rosenzweig (1974) provide a useful analysis of how organisation theory has evolved from treating organisations as "...highly-structured, mechanistic 'closed-systems' operating in isolation to their 'environment', to that of an 'open-system' whereby the organisation interacts with its environment" (*ibid.*, p109). Johnson *et al* (1973) describe a systems approach to understanding organisations as "a framework for visualising internal and external environmental factors as an integrated whole. It allows recognition of the function of subsystems as well as the complex supra-systems within which organisations must operate. System concepts foster a way of thinking, which on the one hand, helps to dissolve some of the complexity and, on the other, helps the manager to recognise the nature of complex problems and thereby to operate within the perceived environment" (*ibid.*, p3).

Similarly, Anaeto (2010) suggests that an organisation consists of synergistic, interrelated and inter-dependent parts (*ibid.,* p70), whilst Soola (2000), noted that "the structure of an organization is deliberate and constructed where and when an individual or group has an objective that cannot be pursued, attained or sustained without the input of other individuals or groups" (*ibid.,* p2).

A participatory systems approach emphasises that an organisation has a number of interacting sub-systems and can only be considered as a holistic or synergistic framework. Ackoff's work is very significant in this context as he was influential in broadening the work of Operations Research to include participatory dimensions and to draw on a wider disciplinary base (Ackoff, 1974). Kirby & Rosenhead (2008) in their analysis of Ackoff's work, suggest that "it laid the foundation for the British school of model-based participatory planning known alternatively as 'problem structuring methods' (PSMs) and as 'soft OR' [which] has developed to the point where it is a standard part of the curriculum in UK Masters courses in OR, and is among the most used OR methods in the UK Civil Service" (*ibid.,* p6). This school of planning which is used in organisational contexts and which could also be said to include the work of Checkland, is clearly particularly relevant to the synthesis of participatory systems approaches and systemic and learning-based organisational development, rather than to just one area of ideas.

Kast & Rosenzweig (1974) also brought both areas of ideas together. They define a system as "an organised, unitary whole, composed of two or more interdependent parts, components or subsystems, and delineated by identifiable boundaries from its environmental supra-system" (*ibid.,* p110). Drawing on their work I devised the following conceptual model (Figure 13) to define an organisation, emphasising the dynamic nature of organisations.

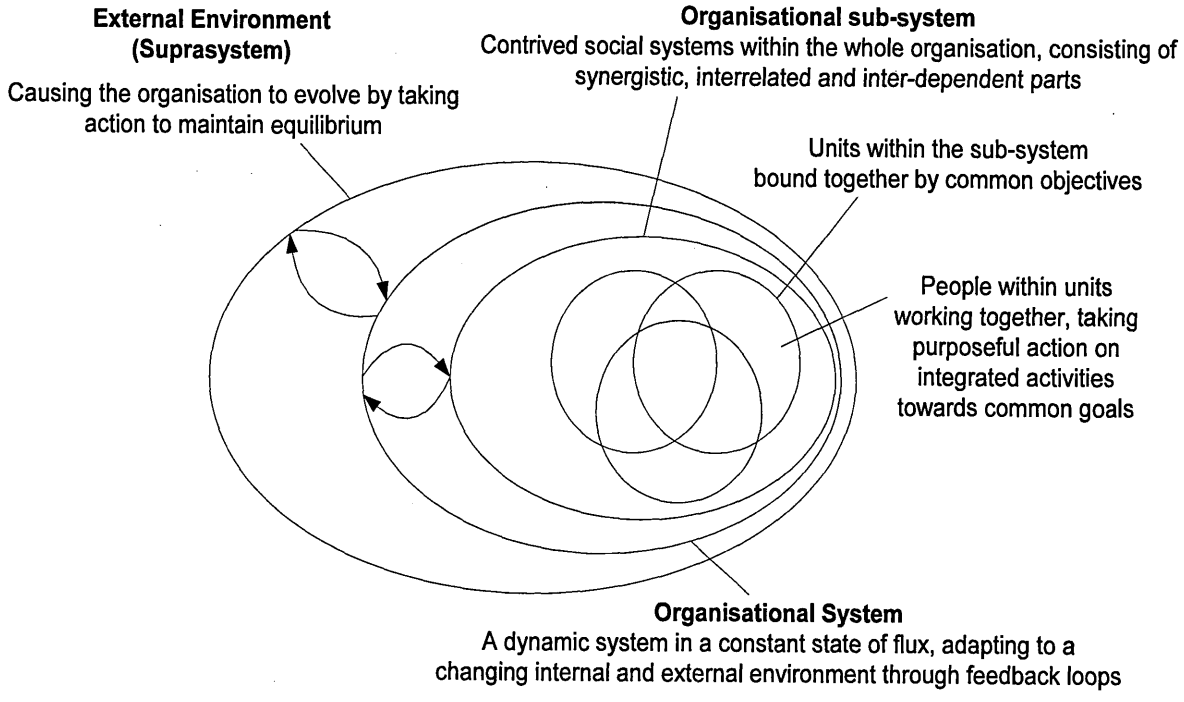

Figure 13 Organisation as a system

Source: this thesis, drawing on Kast & Rosenzwig, 1974 and Soola, 2000

According to Soola (2000), "...organisations must be dynamic to continue to be relevant" (*ibid.,* p7). Ramo & St. Clair (1998), suggest that a systems approach to studying organisations requires "...the application of logic and common sense resting on a sound foundation. It is quantitative and objective. It makes possible the consideration of all needed data, requirements, and (often conflicting) factors that usually constitute the heart of a complex, real-life problem. It recognizes the need for carefully worked out compromises, trade-offs among the competing issues (such as time versus cost). It provides for simulation and modelling so as to make possible the predicting of performance before the entire system is brought into being. It makes feasible the selection of the best approach from the many alternatives" (*ibid.,* p16). Ramo and St. Clair appear to have been referring to a particular kind of systems approach as not all systems approaches would claim to be purely 'quantitative and objective' (Reynolds & Holwell, 2010).

Some approaches, such as SSM and critical systems heuristics, make use of qualitative as well as quantitative data and 'second order' approaches (based on principle of second

order cybernetics) includes the observer within a system of interest rather than claiming an impartial objective stand point (Reynolds, 2007; Ison, 2008). However, the attributes Ramo and St. Clair outline are of particular relevance to organisations undergoing change or wishing to bring clarity to interrelationships and linkages within and outside of the organisation, or for resolving possible behavioural problems or conflicts presented by ambiguities and overlaps in roles and responsibilities between departments.

Also of relevance to the synthesis of participatory systems approaches and systemic and learning-based organisational development is the work of Zeppou & Sotirakou (2003) who developed the "STAIR" (Strategy, Targets, Assessment, Implementation, Results) model as a systems approach to measuring public sector performance in Greece. Zeppou & Sotirakou (2003) were able to show in a number of case studies involving organisations who had followed the steps of the STAIR model, improvements in performance as a result of adopting the model. Zeppou & Sotirakou (2003) suggest their model can be used as a framework for changing public sector performance by using a structured methodology that bridges the gap between performance and the strategic management process. It describes a systems approach using various techniques such as SWOT (Strengths, Weaknesses, Opportunities, Threats) analysis, TQM (Total Quality Management), BPR (Business Process Re-engineering) and benchmarking that "comprehend the opportunities and threats of the external environment, as well as the interdependence of all the sub-systems in the process of transforming input and processes into productive outputs and results. Put simply, the model's proposition is that competence in strategic thinking, strategic acting and strategic measuring, at all levels, can enhance organisational performance" (*ibid.*, p320). This proposition is highly relevant to organisations undergoing development and in devising conceptual models for institutional and capacity-building measures.

There are a number of good examples where systems approaches have been applied in research settings, both within and outside the water and environmental sector, which closely relate to my field of inquiries. All have people at their centre.

For example, Evans *et al* (2012) use systems approaches for the analysis of ecological systems in order to devise conceptual models for predicting changes as a result of environmental degradation. In devising models, they note that "central to taking a systems approach is the recognition that individuals are the elementary particles of all ecological systems" (*ibid.,* p163).

With regard to water management, in conducting research to support rehabilitation and management of the Cooum River in India, Bunch (2003) utilised an 'ecosystems approach' which he integrated with SSM. "The ecosystems approach emphasises the links between ecological and human components which make up the 'socio-ecological system' and SSM, a systems based approach in the management field designed to address complex problematic situations involving human activity" (Bunch, 2003, p182). Checkland (1981) developed SSM because traditional systems analysis techniques failed to adequately address 'messy' problems involving human activity. As with SSM, the benefit of the ecosystem approach is that it leads to a cycle of continuous improvement (on-going adaptive management) brought about by an iterative process informed through new knowledge and experience resulting from interventions in the problem situation. In using the standard tools and techniques associated with SSM and the ecosystems approach, Bunch was able to influence a move from a 'systematic to a systemic' approach to problem resolution. He was able to "facilitate systemic interventions aimed at altering characteristics of the system that underlay its organisational state, rather than target symptoms of it" (*ibid.,* p195). Similarly, Seppa¨la¨ (2002) emphasises the need for a systemic approach and stakeholder participation for effective water and sanitation policy reform implementation in Kenya, Sri Lanka and South Africa. In reviewing a number of

technical assistance projects he identified that a holistic and systemic approach had been lacking. He suggests that the implementation of reform processes often fail because involvement and commitment of stakeholders at all levels is inadequate, and points to the need for donor agencies to build the capacity of sector professionals, civil society and communities to promote policy reform implementation.

Also at a water policy level in the UK, Collins *et al* (2007) report how the SLIM project[22] researched the role of a systemic approach to managing multiple perspectives and stakeholders in water catchments and the challenges this presented to existing forms of knowledge and practice. Applying the conceptual traditions of systems thinking and practice and the methodological approach of systemic co-researching inquiry, Collins and his colleagues reviewed policy and practice in the UK and were able to assess the extent to which systems approaches to multiple stakeholding can lead to social learning for social action. They conclude that "skills for thinking and acting systemically are not yet widespread in regulatory and natural resource managing agencies in the UK. This situation is unlikely to change unless more systemic approaches to managing multiple stakeholding become more prevalent in policy and practice" (*ibid.*, p572).

Taking a similar multi-stakeholder participatory approach to water management issues, Kayaga (2008) used SSM in an intervention to improve already existing performance measurement systems in the Uganda water sector. The action research approach used emphasised strong participation amongst key stakeholders, researchers, and local counterparts. The study was able to show tangible performance improvement through testing a performance measurement framework developed for the study. The study concluded that whilst there had been structural, procedural and policy changes, for these to

[22] SLIM (Social Learning for Integrated Management and Sustainable Use of Water at Catchment Scale) is a multi-country research project funded by the European Commission. Its main theme is the investigation of the socio-economic aspects of the sustainable use of water. Within this theme, its main focus of interest lies in understanding the application of social learning as a conceptual framework, an operational principle, a policy instrument and a process of systemic change. A premise of SLIM is that it is very useful to view sustainability as an emergent property of stakeholder interaction, and not a technical property of the ecosystem. Source: SLIM policy briefing No.3, 2004a.

be sustainable, there would also need to be a positive change in stakeholder attitudes, and organisational values.

An important feature of SSM is the flexibility it allows the problem solver in tackling soft problems, in particular the notion of a Mode 1 inquiry or a Mode 2 inquiry. According to Turner (2008a), "Mode 1 is seen as an intervention into the problem situation, and the underlying intentions are to provide those coming from outside the organisation carrying out the inquiry with further insight into SSM itself, and those from within the organisation who own the problem with a good idea of how to go about improving the problem situation. A Mode 2 inquiry is a much less formal use of SSM that is usually carried out by an experienced systems practitioner with the objective of improving a problem situation by learning more about the root causes of the problem itself. The Mode 2 inquiry is carried out before action is taken and Mode 2 is seen as an interactive process because the learning that is intended to occur is shared by those people working within the organisation" (*ibid.,* p36-37). In the education sector, Turner (2008a) uses a teaching strategy based on implementing a Mode 2 SSM in a real-world context that provides students with a working model of a simple catering system whilst providing practical learning outcomes. He advocates the action-learning approach associated with Mode 2 SSM as a means whereby students attempt to understand more about systems by being actively involved in the operation of a simple food service system that exists in the real world. He identifies an important element in the utilisation of SSM – acceptance of the fact that in any area of human activity there will inevitably be conflicts of opinion. "The desired outcome of any application of SSM is that protagonists can agree to disagree, but that in order to move forward they arrive at an accommodation. In arriving at such accommodations, the 'actors' tasked with improving the situation can get on with the task in hand" (*ibid.,* p43). Turner's distinction between Mode 1 and Mode 2 use of the methodology is important here because, as discussed in section V.4., a shift in thinking

from a systematic to a systemic approach requires a shift in SSM use in real-life contexts where multiple stakeholder interests are at play.

Of particular relevance to this study from a perspective of combining participatory systems approaches and systemic and learning-based organisational development ideas are the work of Bell (1999) and Bosch *et al* (2007) (see section III.3.1). For example, Bell (1999) illustrates well the idea of combining more than one systemic approach in tackling complex problems. In undertaking a training needs analysis across the educational sector in Thailand, Bell adopted a novel approach by "combining the Kolb learning cycle as a tool for comparison and SSM as a tool for analysis and agenda setting" (*ibid.,* p22). He adapted the Kolb learning cycle (comprising the four stages – connection, decision, action and reflection) and developed action plans by applying the seven steps of SSM. By combining systemic approaches, Bell was able to gain a better understanding of research problems rather than from just one area of ideas. The rich literature extolling the benefits of combining or mixing methods provided inspiration for me to be flexible in my approach to devising and applying systems methodologies for my inquiries, rather than stick rigidly to a single approach (see Chapter IV).

Considering the inquiring nature of SSM and the idea that the creation of knowledge is a self-organised process (Stacey, 2001), it appeared to me that combining approaches that bring together people who are trying to take purposeful action could help organisations learn from experience and incorporate that learning back into the planning process (see Chapter V).

From the above analysis, key points concerning conceptualisation of participatory systems and systemic organisational learning ideas of relevance to this study are:

- If people can participate they can learn, and if people can learn, organisations can learn. The inquiring nature of participatory systems and the iterative nature of systemic organisational learning approaches can facilitate the learning process

- If people and organisations can think and behave systemically, they can improve their capacity to improve themselves
- To begin to see the whole, organisations must move beyond a focus on the parts and appreciate the organisation as a dynamic process
- Systemic approaches can be combined to help understand the nature of organisational systems (and the sub-systems that make up the wider organisational system) and bring clarity to ill-defined problematic situations involving multiple stakeholder perspectives
- Systemic OD and learning approaches look to connections and to the whole. In this respect combining approaches that bring together participatory systems and systemic organisational learning ideas, allows people to look beyond the immediate context and to appreciate the impact of their actions upon others. To this extent it holds the possibility of achieving a more holistic understanding of an organisation
- I take caution from literature regarding Senge's vision of learning organisations in that he did not define the social practices of learning that would realise the utopian ideals of the learning organisation. The idea therefore that organisational learning as a process of systems-based organisational change is theoretically flawed as a systems or structural model "because it cannot theorise the organising practices by which learning and change occurs in organisations,....and it is flawed as a practice for increasing the dispersal of human agency, power, knowledge and autonomy within the workplace" (Caldwell, 2012, p1)
- I also take caution from literature regarding a number of insolvable dilemmas of participation as a contributor to foresight and anticipatory behaviour. For example:

- Although everybody agrees on the idea that participation is not the panacea, participation literature often treats it as such (Fischer, 2000).
- "Participation works best in a situation where it is not needed, i.e. in an environment in which all interests are taken into consideration. Paradoxically, the rise of participation can only be explained by the fact that this latter condition is not met" (Van der Helm, 2007, p6)
- "The all-comprising nature of participation – if participation is good, then it is good for everything" (*ibid.*, p8)
- "Participation silently assumes two preconditions that are likely not being met: openness and integrity of the actors, and willingness to sacrifice for the greater good" (*ibid.*, p10)

Drawing on the literature reviewed in this chapter of particular relevance to the synthesis of participatory systems approaches and systemic and learning-based organisational development, rather than just one area of ideas, I devised two conceptual models; one for purposes of my pre-research work and the other for my research inquiries. I used both models to introduce systems concepts as part of my field-work described in Chapter V (see Figures 10 and 15 respectively).

III.4. Concluding Remarks

I have drawn on the work of a range of theorists and practitioners which has provided some key insights for my research. These insights have influenced the theoretical perspectives on which I have based my inquiries.

The key concepts explored in this chapter have been:

1. Institutional strengthening and capacity-building in development situations
2. Water management and governance
3. Participatory systems approaches

4. Systemic organisational development and learning

Together they underpin this research and direct attention towards systemic understandings of the managerial aspects of water institutions, and how systemic approaches might be used to bring about lasting improvements.

Key insights drawn from each of the concepts explored are described below:

1. Institutional strengthening and capacity-building in development situations

Building institutional capabilities requires capacity-building interventions that are tailored to the environment in which the organisation operates (North, 1993; Abrams, 1997; Mentz, 1997; Seppa¨la¨, 2002; Colvin *et al*, 2008). For effective engagement of those undergoing development, this requires thorough understanding of human activity systems to enable the inter-relationships of issues and problems to be explored (Taylor, 1996; Jacobs, 1996; Abrams, 1997; Ongaro, 2004). To build capacity at an institutional level, organisations need to improve their own capacity to improve themselves through an experiential learning process (Ralston *et al*, 1993; Stacey 2001; Asian Development Bank, 2003; United Nations Development Programme, 2003a; Greif, 2006).

2. Water management and governance

Effective water management and governance is about balancing the needs of society, ecosystems and the environment (Alam, 2003; Shiva, 2005a; Postel, 2008; Government of India, 2009, Government of Kerala, 2012). Engaging with systems traditions can help organisations balance these needs (Shirley, 2002; Ongaro, 2004; Hodgson, 2006). Governments that mobilise civil society and encourage active participation and ownership from stakeholders can help ensure water for future generations (Polidano, 2001; United Nations Environment Programme, 2002a; Singh, 2003; Purnomo *et al*, 2004; Government of India, 2008a). However, collective approaches require appropriate systems and capacity

development measures to ensure sustainability of approach and outcomes (Chackacherry, 1993; Jacobs, 1996, Government of Kerala, 2002).

3. Participatory systems approaches

Participation that encourages multi-stakeholder perspectives can generate valuable discourse and help encourage a sense of belonging and ownership of problems (Gregory, 2000; Stacey, 2001; European Commission, 2003; Bosch *et al*, 2007; Open University, 2006; Collins *et al,* 2007). Systems thinking can help achieve a clearer understanding of these problems and help resolve complex organisational and managerial issues (Checkland, 1981; Khisty, 1995; Checkland & Scholes, 1999; Chapman, 2002; Reisman & Oral, 2005; Ison, 2008; Kayaga, 2008; Open University 2011). However, participatory approaches that are also intended to be systemic must take local people's perspectives into account and give them a greater say in planning and managing the outcomes of the participatory process (World Bank, 1996; Gregory, 2000; Bunch, 2003).

4. Systemic organisational development and learning

To begin to see the whole, organisations must move beyond a focus on the parts and appreciate the organisation as a dynamic process (Beckhard, 1969; Ackoff, 1974; Argyris & Schön, 1978). Systemic organisational development and learning approaches look to connections and to the whole and therefore can help bring clarity to organisational systems and the sub-systems that make up the wider organisation (Kast & Rosenzwig, 1974; Ramo & St. Clair, 1998; Stacey, 2001; Zeppou & Sotirakou, 2003). Organisations can learn if people can learn. The inquiring and iterative nature of participatory systems and systemic organisational learning approaches can facilitate the learning process (Senge, 1990, 2006; Finger & Brand, 1999; Senge *et al*, 2000; Soola, 2000; Anaeto, 2010).

This review of literature also forms the basis on which the research methodology and data analysis for this research were devised and carried out, as discussed in the next chapter.

CHAPTER IV - METHODOLOGY

IV.1. Introduction

As mentioned in my introductory chapter, the main opportunity for research was in the design and trialling of an intervention in KWA that could help the organisation become more effective over time. The possibility of making such an intervention was supported by findings from literature (see Chapter III) and my own previous experiences. As a result of previous ('failed') interventions at KWA, a new approach was needed. Early indications from exploring the research context were that this approach needed to be more participative, and supportive of the notion that the inherent skills and culture within the organisation could be used to effect sustainable improvements. There are two key aspects of methodology covered by this research:

(i) I develop and use appropriate methodology taking my research contexts and theoretical traditions into account.

(ii) The research is to some extent *about* methodology, in that it was apparent that the organisation needed to explore new ways of tackling its own complexities which includes reviewing potential new methods and techniques of inquiry.

This chapter presents the methodology employed in the research, starting with the overall principles and philosophy, followed by the methods, techniques and tools used, the rigour and validity of the approach adopted, and other important considerations such as my role as researcher. My findings in relation to my research process and method of investigation are discussed in Chapter VI (section VI.2.1), and my reflections on methodology are discussed in Chapter VII (section VII.3).

IV.2. Devising My Overall Research Process

The diagram below (Figure 14) describes my overall research process, which was iterative. As indicated, following an initial phase of planning and preparation for the research my inquiries regarding theory and methodology took place in parallel to the workshop inquiry, as shown. Reflection took place both as part of the inquiry and in the final stage of my process which included review and write-up.

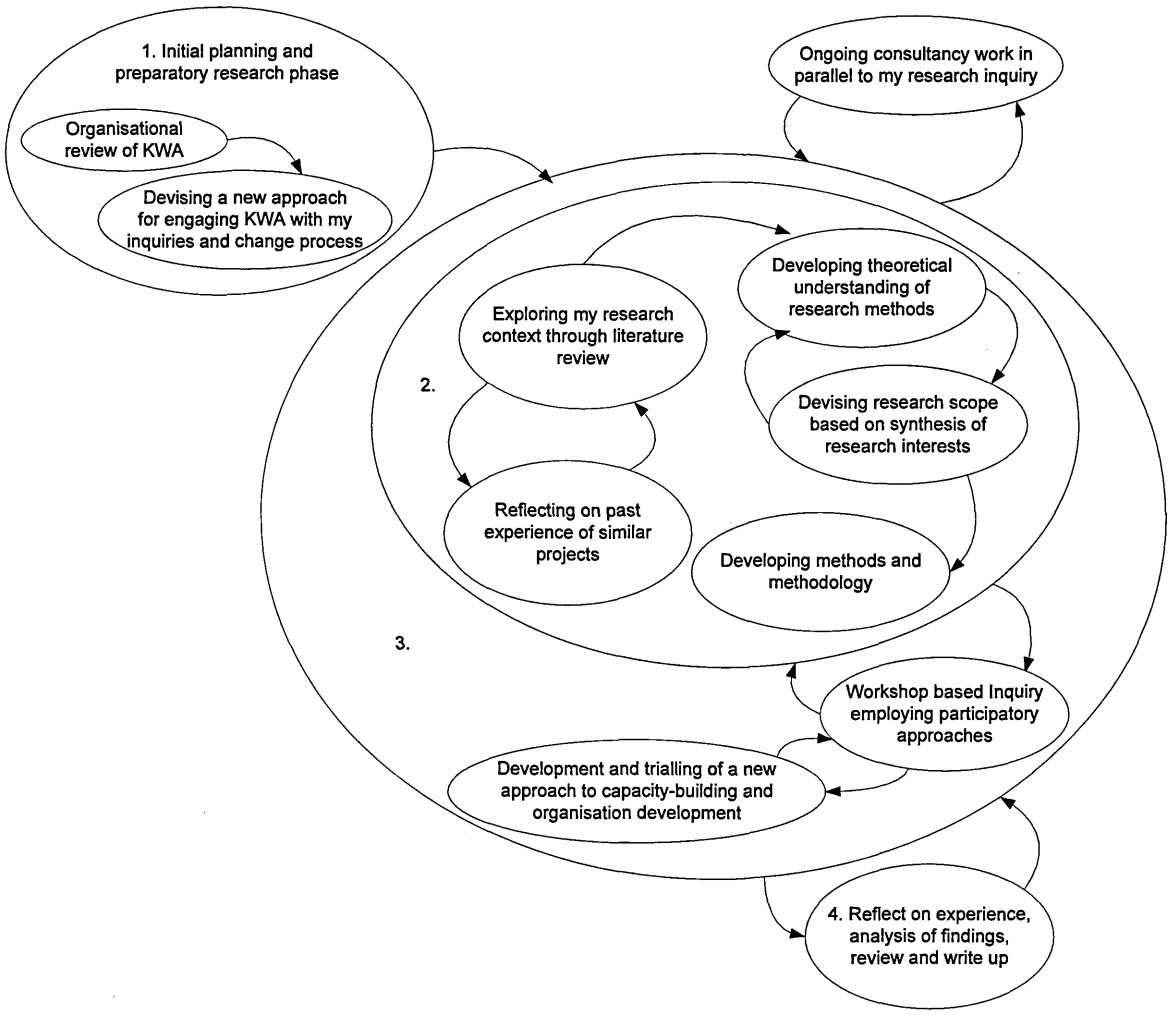

Figure 14 Activity diagram of my overall research process

Source: this research

The literature review (presented in the previous chapter), served to situate and illuminate the various ways of approaching the research effort as appropriate to the contextual setting described in Chapter II. Whilst there are many possible ways to approach such research,

the research methodology devised was chosen because it builds on and examines the merits of using a systemic approach to improving public sector water management performance within the Kerala context, with particular emphasis on participatory methods.

I engaged with a number of systems lineages and traditions as discussed in Chapter III, particularly those that have proved useful for learning in contexts of organisational development in complex interconnected situations. Through aiming to trigger enthusiasm for purposeful participation in an experiential learning process, I explore the possibilities for achieving buy-in, ownership and sustainable improvements through concerted action, by introducing systems concepts in a workshop setting to diverse actors with enthusiasms for change, albeit from differing perspectives. This aspect of my research is informed by second-order cybernetic understandings of the systemic tradition (Reynolds, 2007; Ison, 2008; Reynolds & Holwell, 2010; Reynolds, 2011). In particular I draw on Ison and Russell's work on designing a research process to trigger enthusiasm for action, which in turn draws on Maturana's work on emotions, moods and body dispositions for actions. Ison (2010, p276) argues that an emotional connection takes place through active listening leading to an invitation to participate being experienced and possibilities of new ways of being. Awareness is needed of the way that introducing new external resources to the process can help or hinder enthusiasm. It follows that careful attention needs to be paid to bringing together people with common enthusiasms for action and cycles of critical reflection are required when enthusiasm is used as a methodology.

At the outset, my process and method of engagement was aimed at motivating people to plan and manage a collective vision of the best possible future for the organisation and those that work within it, through emphasising participatory methods of collective inquiry, analysis, and reflection on findings. Influenced by Emery (1989), workshops were used to gain a common understanding between participants on a framework of ideas, in order to create conditions for shared learning that would inform action and future planning, and

thus form the basis for sustainable development beyond the life of the research. This framework of ideas was based on the work I had previously completed as a consultant; this was later used and expanded on through the use of a questionnaire as part of the research effort (see section V.7). The workshops are described further in section IV.5 below.

IV.3. Overall Principles and Philosophy

The main principles underpinning the methodology were the use of:

1 Qualitative research methods

2 Participatory approaches

3 Some of the principles of action research

4 A systemic approach, drawing on soft systems methodology

Due to the many interests at play, such as hierarchical power struggles and authority levels within and across the organisation, cultural, political and stakeholder interest (and my own as researcher), as well as the contentious issues at stake, the overall approach devised was reflective and adaptive in nature. It employed qualitative approaches suitable for data gathering and analysis (Creswell 2003; Borrego *et al*, 2009; Pollack, 2009). Adapting my approach was necessary to reflect the changing dynamics of the workshops as they progressed over time. This dynamics were dictated by the issues discussed, and the interaction and contentions between workshop participants during the process of debate.

There was thus more emphasis on the qualitative social and discursive aspects of the inquiry as opposed to quantitative methods, which tend to emphasise discovering and assessing regularities (Patton, 2002a; 2002b). In fact, observing and recording the interactions between the various stakeholders provided the most valuable insights because of the different opinions and cognitions around the synthesis of research interests described earlier (section I.4.1). The aim was to observe and understand the actions of participants as they deliberated and debated the issues at stake from their own

perspectives. Gathering qualitative data in this way became the primary data collection instrument and provided valuable data for later analysis and reflection.

I approached my data in the following way. As a consultant, I initially used qualitative semi-structured interviews with open-ended questions in order to identify and describe key themes that emerged. I did not transcribe these interviews for ethical reasons, but with interviewees' agreement I did keep detailed records and notes for reference, recorded both during and immediately after the interviews. As part of the research effort, these data were then used to develop a structured instrument in the form of a questionnaire. The qualitative data in the questionnaires were analysed based on a quantitative scoring and analysis system in order to rank feedback into thematic areas in line with those suggested from the consultancy phase. This provided a method for data comparison and validation of findings, through comparison of results and verification of findings through independent review.

Qualitative participatory approaches and in particular SSM, were chosen to inform the methodology for the study because of my interest and experience of participatory approaches in previous projects, and the wealth of literature suggesting its appropriateness for organisational change (Checkland, 1980; Khisty, 1995; Bell, 1999; Checkland & Scholes, 1999; Bunch, 2003; Chapman, 2002; Creswell, 2003; Reisman & Oral, 2005; Ison, 2008). Based on my past experience I could see that the SSM approach could also usefully complement other management tools such as the Balanced Scorecard in clarifying thinking about strategic performance and change issues (Jacobs, 2004). However, as evident in the literature reviewed in this research, there are many factors other than the use of participatory approaches that can also contribute to successful organisational change. For example, the organisation's environment (structure and culture), and leadership skills, and external influences can have a positive impact (Pettigrew *et al*, 1992). In using my approach it was therefore important to try and identify if and how the use of participatory approaches does contribute to the process of organisational change, whilst recognising the

complexities of organisations as social systems (Vickers, 1968). In this respect I have been influenced by the work of Vickers, 1965; Argyris & Schön, 1978; Checkland, 1981; Churchman, 1982; Senge, 2006; and others refered to in section III.3.

To start the participatory process, a number of participatory workshops were held in order to provide KWA with the impetus and support to embark on a major 'transformation and change management programme'. The methodology devised emphasised the fact that the various actors within the organisation had different perspectives of the problems at stake, and how these affected them would be based on their world view. The methodology also emphasised that the desired improvements or outcomes could not be predetermined or 'engineered' (as would be the case in employing 'hard systems' techniques), but informed a process by which iterative operation of the methodology promoted learning, that could lead to desirable and feasible change within the organisation.

In terms of the practical aspects of engaging with stakeholders in a workshop setting, my overall approach had elements of systemic action research. This was influenced by soft systems thinking which defines situations through action concepts (Checkland, 1981; Checkland & Scholes, 1999), and also by the work of Lewin (1948) who was concerned primarily with social change, and believed that the motivation to change was strongly related to action. "If people are active in decisions affecting them, they are more likely to adopt new ways" (*ibid.,* p202). Lewin suggested that "research needed for social practice can best be characterised as research for social management or social engineering; it is a type of action-research, a comparative research on the conditions and effects of various forms of social action, and research leading to social action". Lewin's approach involved a "spiral of steps, each of which is composed of a circle of planning, action and fact-finding about the result of the action" (Lewin 1948, pp202-3; cited in Smith, 2007). This type of approach has gained a significant foothold in community-based and participatory approaches and has lent itself to the organisation development arena; Wendell French and

Cecil Bell (in French & Bell, 1978) define organisation development as "organisation improvement through action research". Action research is problem-centred, client-centred, and action-oriented. It involves the client in a diagnostic, active-learning, problem-finding, and problem-solving process, where data is fed back in open group sessions, and the client and the change agent collaborate in identifying and ranking specific problems, in devising methods for finding their real causes, and in developing plans for coping with them realistically and practically. Action research also sets in motion a long-range, cyclical, self-correcting mechanism for maintaining and enhancing the effectiveness of the client's system, by leaving the system with practical and useful tools for self-analysis and self-renewal (Johnson, 1976). Mindful of the fact that it can take a long time to get research findings back into the action cycle, it was not possible to devise a methodology for this study that strictly adopted an action research approach. However, the applicability of some of the action research elements, particularly those that could lead to improvements in organisation learning and development through involvement and collective action, was therefore the driving force behind using this approach.

IV.4. Synthesis of Participatory Methods and SSM in the Workshops

Literature suggests (section III.2.1) that participatory methods were primarily used in impact assessment and project management early on, but have more recently been used increasingly for understanding stakeholders' perceptions, increasing public accountability, and institutional strengthening (Fals-Borda & Rahman 1991; Narayan, 1993; Chambers, 1994; Pretty *et al*, 1995a). The workshops (described in section V.4) were the primary 'vehicle' for ensuring that those to be involved in the change process participated fully in the development of the organisation. Care was taken from the outset, however, not to be over-ambitious in terms of desired outcomes, bearing in mind that systems concepts were being introduced to the organisation for the first time. This raises the question of capabilities of those to be involved with the change process. Jacobs (1996), talks about

capabilities in terms of 'local management capacity', and 'absorptive capacity', where the former relates to the 'inherent' capabilities of local management, in contrast to absorptive capacity which relates to the ability to assimilate new knowledge, skills, work practices and attitudes ('business ethics, principles, values and behaviours'). Jacobs' view on capabilities is highly relevant to my inquiries, and influenced the workshops to a great extent in terms of encouraging knowledge development through an iterative process of learning - the 'cycle of learning and reinforcement' (similar to the 'Kolb learning cycle') advocated by Bell (1999).

A further driver for the workshops was the fact that an intervention owned by the organisation, would more likely stand the test of time beyond the life of the research, thus addressing the issue of sustainability once support is withdrawn (Chackacherry, 1993; Jacobs, 1996). Again, in terms of sustainability, this raises the question of capability or capacity to manage, own and lead initiatives on the part of the organisation. In conducting the workshops, it was this context that led to the use of participatory approaches, with emphasis on developing capabilities, through a systemic learning process, linked to action and change. Building capacity in this way could potentially provide the organisation with the capability to implement sustainable improvements, over time, providing these were practicable and could therefore be operationalised in the local context.

It is tempting (especially when under tight time constraint) to look at a poor-performing organisation as a problem to be fixed, and to come up with a solution without adequately consulting the people who make up the organisation. Adopting this viewpoint, however, invariably represents a lost opportunity in mobilising the resources and skills of those within the organisation undergoing development. Based on my analysis of outcomes that resulted from previous interventions participation (Price Waterhouse, 1994; North West Water, 1997), it would appear that KWA has a history of this. However, taking a participatory approach is not an easy option. Involving a wider range of stakeholders often

creates or exposes conflicts, and requires significantly more time, resource and effort in terms of administration, coordination and long-term commitment. This was certainly true of my study which took place over a period of four years, as opposed to previous interventions with minimal participation which were completed in a matter of months.

The workshops aimed to create conditions for shared learning that would inform action and future planning, and thus form the basis for sustainability beyond the life of the research. I tried to strike a balance between achieving shared understanding and preserving alternative viewpoints, and aimed for the workshops to be harmonious, where alternative ideas could be challenged without any hostility or threat. I realised however, that in forums that encourage ideational debates, there is bound to be a certain level of dissonance and for some participants a degree of cognitive dissonance (Espinosa & Porter, 2011). On reflection, harmony was maintained for the most part. But my experience has been that too much harmony can quell new ideas. I tried at all times to maintain control of the workshop process but believe strongly that participants should own the content. I therefore asked questions to steer the content based on the background information I had gathered during the pre-research phase. I also tried to extend the thinking at the workshops by critically questioning assumptions and by occasionally bringing in examples from other organisations. It was interesting to see the power that participants were willing to hand over to me as facilitator, which enabled me to steer discussion to some extent, but I tried not to abuse this power and tried to guide rather than manipulate the group.

I acknowledge at this point the subjectivity of interpreting events as they occurred and of describing my personalised account of the workshops as a participant-observer (see section IV.5). My approach followed the example of Davies & Ledington (1991) in separating the "rhetoric of methodology from the reflection on the action" (*ibid.,* p14). I considered this approach appropriate, since, if it is accepted that SSM is based on interpretive theory, then my understanding of the situation under research, would

inevitably involve "trying to subjectively understand the point of view and the intentions of the human beings who construct social systems" (Jackson, 1985, p142).

Guided as much by literature on participatory methods as I was by systems traditions, I chose SSM to guide my process and method of investigation because, flexibility, learning, communication, iteration and participation, major considerations for my inquiries, are key components of SSM and fundamental to the use of the methodology. The process used in the workshops (see section V.5) followed Checkland's 'four-activities model' (Checkland, 1981). As intended by Checkland, each use of SSM caused the problem-solving system to evolve, i.e., SSM is an approach which "continually learns and adapts in response to its interactions with a problem" (Atkinson & Checkland, 1988, p713).

The workshops acknowledged that the various perspectives[23] or world views held by participants are equally valid. The methodology also emphasised the notion that the desired improvements or outcomes should not be predetermined or 'engineered' but inform a process by which iterative operation of the methodology promotes learning, which could lead to desirable and feasible change within the organisation. This was one of the main drivers for using the SSM approach at the workshops, and was a significant departure from previous interventions experienced by KWA. Previous interventions had prescribed 'solutions' that failed to adequately take into account local conditions, perspectives, desires and capabilities, as well as cultural and business ethics (local situated knowledge and practices) as recommended by Singh (2003).

My application of the methodology for my inquiries adds evidence in support of the statement by Checkland (1999), and others (Checkland & Scholes, 1999; Bunch, 2003),

[23] In systems terms, differences in perspectives help in the understanding of problems at stake, and in determining the approaches to resolving them. Taking into account the different perspectives of the various actors involved in the workshops, led to valuable debate about the problems at stake, and through a process of discussion, analysis and consensus, it became evident to the participants that improvements to perceived problems could be devised through an iterative process of learning about the problem situation, rather than through implementation of prescribed solutions. Source: Checkland, 1981; 1999; Checkland & Scholes, 1999.

that SSM would be a particularly appropriate methodology to support organisational change.

IV.5. My Role as Researcher

Soft systems thinking can generate an evolving appreciation of people's points of view and intentions and sees social reality as the construction of people's interpretation of their experiences. In this sense, soft systems thinking is linked to interpretive theory and underpins the assumption that people have intentions that lie behind each action that they perform (Jackson, 1991a, cited in Flood, 2010). Also, to achieve a meaningful understanding of situations as they unfold it is necessary to understand the cultural aspects within the given context, as well as the interpretations and perceptions that people form within the context. According to Checkland & Poulter (2006), authentic understanding of any action context requires participation by all those involved and affected by the action being taken, and can be achieved only if people enter into an action context as both an actor and a researcher. Similarly, Fell & Russell (2000), cited in Ison (2008), describe the significance of the observer, rather than what is being observed, based on second-order cybernetics theory, in terms of the effect that the influences or 'world view' of the observer can have on those being observed. For example, whenever the observer acts, interacts or influences the observed, the situation will change, thus creating a new situation. In this respect, the observer becomes party to the outcomes as if he had been a participant (*ibid.*, p145).

Based on the foregoing it was clear that an approach in which I was completely open about my research and got myself actively involved with the organisation would be a relevant approach, as this provided the opportunity for participant observation. Immersing myself in the social setting of the research as it was happening, provided a vantage point from which to base my inquiries, as opposed to relying on structured data-gathering methods alone, which sometimes fail to reveal some of the hidden meanings that underlie the data

(Patton, 2002a). My prior experience and familiarity with the regional and cultural contexts helped in this regard, and also eased potential problems of accessing the setting. Obtaining participant consent to use the data gathered during my inquiries was seen by the senior management of the organisation as unnecessary because of the open approach, and also because of the prior interaction I had already had with many of the participants in my consultancy role. However, care was taken to ensure the research was conducted ethically, without compromising the integrity of individuals or the organisation. One key aspect was the maintenance of confidentiality, and where issues had been raised in plenary discussions, follow-up and agreement was reached with workshop participants prior to presenting findings and outcomes to the wider organisation. I also made sure that participants were aware that I would be writing up research based on the workshops as a PhD thesis and have taken care only to use the data from the workshops in the form that was agreed with participants.

Care was also taken to ensure that the level of my involvement within the context of the research did not interfere significantly with the balance of interactions or discourse, and more importantly, did not lead to outcomes considered to have been imposed by me. For example, it was often tempting to ask leading questions, and therefore it was necessary to keep a check on my level of objectivity by seeking answers from current framings rather than prior knowledge. I also needed to take care to seek clarification of issues raised, and not to assume that I knew what was being expressed. In my final analysis, however, my knowledge of the context allowed me to navigate through the research, despite the pressure to keep in check my own biases in the development and implementation of methodologies and outcomes, as well as in the analysis of the data.

IV.6. Methods, Techniques and Tools Used

Research methods and tools used included:

- Historical analysis

- Questionnaires
- Focus Group discussions
- Semi-structured interviews
- Faciliated stakeholder workshops
- Diagramming and development and exploration of conceptual models

Each of these methods and tools is briefly described here and reference is made to the relevant chapters for further details.

Relevant literature for developing understanding of methodology as well as theoretical concepts (Chapter III) was reviewed which served to situate and illuminate the various ways of approaching the research as appropriate to the contextual setting described in Chapter II.

The historical analysis was carried out as part of my pre-research task as a consultant whilst carrying out a diagnostic of the organisation (see section II.4.2) and also later during the research process in conjunction with the KWA change management team (CMT) as part of the workshop-based inquiry described in Chapter V. The historical analysis included the reviewing of results of previous studies conducted by other consultants, and was used as a basis to stimulate debate at the workshops. It also highlighted pitfalls experienced during previous change initiatives (such as the lack of active involvement and ownership for development and implementation of change interventions).

As mentioned in section IV.3, I initially used semi-structured interviews with open-ended questions in order to identify and describe key themes that came out of discussions and then used these data to develop a structured instrument in the form of a questionnaire. The qualitative data in the questionnaires were analysed based on a quantitative scoring and analysis system in order to rank feedback into thematic areas (see Chapter V).

Focus Group discussions were used along with diagramming techniques throughout the workshops. Over an 18-month period (June 2005 to October 2006), four workshops were conducted in which KWA senior managers and a cross-section of staff from various disciplines identified and expressed problems that existed within and outside the organisation. Participants generated and debated goals, objectives and interventions, for better management and improved institutional performance. Workshops included formal presentations to generate and guide discussions, introduced methods for analysis, and incorporated brainstorming sessions, informal discussions, facilitated thematic workgroups, and plenary sessions. As main facilitator, I was supported in these thematic workgroup and plenary sessions by two of my consultancy colleagues (involved with institutional strengthening aspects of the Kerala Water Supply Project) who agreed to help as co-facilitators to help record participant viewpoints. The ultimate aim was to record practical and sustainable outcomes (based on mutual understanding and accommodation of viewpoints). The concept that the various problems expressed could be viewed as 'human activity systems requiring rational intervention' (Khisty, 1995), was enforced at the first workshop, where workgroup and break-out sessions were used to actively involve participants in exercises to identify and describe the problems at stake, and to debate and conceptualise potential solutions. During the observation process at the workshops, notes and data were captured and later transcribed with the outcomes. These were combined with notes taken at the various break-out sessions and plenary sessions, where participants also used basic diagramming techniques to create rich pictures of the issues at stake from their own perspectives. The diagrams evolved over time and were recorded and used for reflection during the inquiry phase, as well as later on during the writing-up process.

My past experience of using participatory techniques in workshop settings has been that they can enrich an inquiry by drawing on local knowledge. However, in my role as a researcher here I approached them critically, recognising that a range of dynamics may be

at play to arrive at outputs that may favour some contributions over others. For example, Githens (2009) cited in Bell & Morse (2010) argues that while there is likely to be some variation in perspective, participatory techniques can incorrectly provide an appearance of *apparent* consensus. Similarly, Connelly and Richardson (2004), suggest that "Thinking critically about exclusion in consensus building, and recognizing the shifts away from *ideal* consensus in a practical setting, is uncomfortable but necessary. It is clear that there exists no generic framework for consensus building which can be universally applied, but rather that consensus building approaches need to be developed specifically for their application, reflecting the nature of the issues being addressed, the type of output required, the range and nature of possible stakeholders and the tensions between them, and the different needs for democratic participation, debate and action" (*ibid.,* p15).

It was therefore important to consider group dynamics and the relation between process and outputs when devising the initial workshops. Whilst forces at play within the differing hierarchical groups will inevitably have influenced the outputs, in the context in which the workshops were devised, debate that led to *practical* consensus on previously intransigent views (even at the risk that there may have been some form of coercion within the Groups) provided a valuable learning opportunity. It was the opportunity for learning that provided one of the main drivers for using facilitated stakeholder workshops. Workshop deliberations and outcomes are summarised in Chapter V and described in detail in Appendices 2-5.

IV.7. Data Analysis

The aim of data analysis for this research was to enrich the understanding from the description of the field observations and other data collected in a way that increased the confidence of the findings. The varied nature of the data in terms of perspectives, opinions and other dimensions meant that the analysis had to be able to bridge and bring together

many areas. This was achieved through organising data into thematic areas (described in section IV.3), which helped to make sense of the emerging issues.

While this research relied heavily on actor accounts and articulation of the issues discussed and deliberated, it was recognised that knowledge and facts around the issues at stake were not limited to what was said or recorded, but that it also encompassed many kinds of activity and sources of knowledge linked to the issues that were not explicitly discussed. It was the implicit nature of this knowledge that required that I balance the practical and analytical aspects of the issues under research whilst interpreting the data.

The most appropriate way for me to approach my data was to use the 'abductive' inference method because in general I was not trying to explain an objective world through a deductive process or build a theory through an inductive process but to build a hypothetical explanation of how to strengthen institutions in the water sector through characterising a potential capacity-building initiative. Typically I was dealing with an incomplete set of data and therefore had to base my arguments on observation and available data. This allowed me a certain freedom to be inventive and intuitive (as suggested by Thagard & Cameron, 1997) which was of particular relevance to the contextual setting. An abductive approach draws on Charles Peirce's work on abductive reasoning and seeks likeliest possible explanations from available evidence (Hoffmann, 2008). In this way it differs from a deductive approach which seeks to guarantee a specific conclusion from a proposition or hypothesis, and from an inductive approach which starts from observations and accumulates evidence to develop generalisations and theory. I cannot claim that my approach was purely abductive as I did engage in some processes of induction and deduction as can be seen from this thesis but I find abduction the best overall description of my approach.

IV.8. Rigour and Validity of the Approach

Earlier in the chapter, I described the need to take care in the process of data collection and analysis, to ensure, not only that the outputs derived by the participants were as a result of their own deliberations, but also that the analysis of the data was free (as much as practicable) from my own biases as a participant-observer. It was thus important to validate the data that came out of the study. Different sources of information were used to cross-validate findings, patterns and conclusions. For example, my co-facilitators reviewed the material independently and made judgements and interpretations about the content and meaning of the material. In addition, the members of the change management team (consisting of 3 full time KWA senior officers) checked for biases in my conclusions. Workshop participants were also asked to comment on the accuracy of facts and interpretation in the study; with the aim of increasing confidence that outcomes were accurate and comprehensive.

IV.9. Concluding Remarks

This chapter has described the methodological approaches employed in this study and has touched upon some of the challenges and ethical issues I faced in my role as researcher due to my prior knowledge and involvement with the organisation as a consultant. In fact it was the conflicts between my practitioner and research interests that shaped the methodological approaches devised for my inquiries. For example, I had to ensure that my interest in devising outputs that could be considered successful (from a consultancy point of view) did not overly influence the direction of the research effort.

Whilst there was more emphasis on the qualitative social and discursive aspects of the inquiry, the data gathering and analysis employed reflected a desire to adopt a holistic approach in dealing with the complex relationships between human actors, within an equally complex socio-technical and cultural setting.

Following on from this presentation and discussion of research approach, methods and techniques, the next chapter describes my fieldwork. This forms the basis of the empirical study which explored the use of systemic approaches to help the organisation make sense of complexities through engaging with systems traditions. A workshop-based approach was used to explore new ways for the organisation to devise improvements through a process of action and leaning, including the possibilities for operationalising systems methodologies within the contextual setting.

CHAPTER V – WORKSHOP-BASED INQUIRY

V.1. Introduction

This thesis now proceeds by describing the workshop-based inquiry, employing participatory approaches, which forms the empirical basis of my research. The workshops explored the use of systemic approaches to help Kerala Water Authority (KWA) make sense of the complexities faced through engaging with systems traditions. The emphasis is on exploring new ways for the organisation to devise improvements through a process of action and leaning.

This chapter:

(a) Describes my process and method of investigation and analysis, and provides an overview of activities carried out during the period of research

(b) Describes my role as facilitator

(c) Outlines the workshops which were used to introduce participatory approaches and systems concepts consistent with SSM thinking, as a means to encourage active participation and exploration of the complexities faced within the organisation

(d) Describes how SSM was applied in practice, emphasising participatory aspects, and critically analyses workshop deliberations

(e) Provides an analysis of how wider participation at an organisational level was devised through additional 'Communication Workshops' and by use of a questionnaire introducing a duality of approach (qualitative discursive aspects of workshops coupled with quantitative analysis techniques of the questionnaire)

V.2. Process and Method of Investigation

As outlined in Chapter II (section II.4.2), the findings of the organisational review study were presented to key actors prior to the workshop inquiry phase. The discussion of findings and the implications that the findings had on the organisation sparked a need for interaction and involvement of those within the organisation, in devising a change management programme. This provided the opportunity for this PhD research to be carried out in parallel to my consultancy work and represented a fundamental shift away from previous interventions at KWA sponsored by support agencies (over a period of 15 years), which appeared to inadequately engage with those within the company. Previously, lack of participation of KWA staff in organisational change interventions appeared to have contributed to the view held by support agencies and the organisation alike, that interventions in KWA either failed to 'get off the ground', or failed to deliver lasting institutional strengthening and capacity-building measures (Price Waterhouse, 1994; North West Water, 1997; Government of Kerala, 2002). This view was supported by my own findings as part of my consultancy work which required that I review past interventions in order to avoid duplication and to help the organisation learn from past experience (see Appendix 1).

The change management programme had a number of aims which influenced the approach and method of investigation for my inquiries. These were:

1. To help the organisation think about ways to improve performance through exploring the complexities within the organisation as human activity systems (Khisty, 1995; Checkland & Scholes, 1999)
2. To encourage those engaged in the change management programme to articulate problems from their own perspectives, and to devise changes that are desirable and appropriate to the contextual setting

3. To generate enthusiasm for change through encouraging participation and active involvement from those taking responsibility for implementing change, and from those who would be affected by it
4. To devise methods and an approach based on systems thinking that the organisation could adopt to effect change on a sustainable basis

The workshops (used to start the change management programme) became a key part of my empirical work for this thesis. The workshops provided KWA with the impetus and support to embark on a unique approach to change, and this was reflected in my overall research design which was devised to encourage those within the organisation to take ownership of, and lead the change process.

I tried to build on the good relations already enjoyed with many in KWA (as a result of my consultancy work) in order to foster a sense of trust in my approach, amongst those involved with the change management programme and to encourage active participation. This is considered good practice in facilitating organisational change (Holland & Blackburn, 1998; Checkland & Poulter, 2010; Bosch *et al*, 2007; Baxter & Sommerville, 2008). My approach and style of facilitation seemed to help inculcate a wider enthusiasm for change, going beyond the enthusiasm evidenced within certain ranks of the management hierarchy – the individuals that sponsored the change management programme. As discussed in Chapter IV, this approach to generating enthusiasm was influenced by the work of other researchers (including Ison & Russell, 2000). With a view to the organisation sustaining the change management programme beyond the life of my research inquiry, an important consideration was to explore methods and approaches that those involved with the change management programme could own and operationalise as part of their 'day-job' rather than consider it a one-off exercise.

Literature (Department of International Development, 1997; European Commission, 2003; Gregory, 2000; Singh, 2003; Government of India, 2008a) and my own experience

supported the view of the KWA senior management team sponsoring the change management programme that the best way for the organisation to own the change process would be to place responsibility for the initiative with the Change Management Team (CMT). Official appointment of the CMT was therefore seen as an essential step to giving the change management programme credibility and the team the authority within the organisation to lead it. With a view to sustaining the change effort, it was agreed by the KWA senior management team at the outset, that the CMT would work on the programme full-time and be of sufficient rank (with sufficient decision-making authority), to effect change initiatives coming from the change management programme. It was considered essential by the organisation that for the long-term viability of the company, those engaged in the team had a genuine interest in bringing about desirable change that was feasible and implementable in the local context and that their intentions were creditworthy. At this stage in the inquiry, I had to negotiate my way forward. In my facilitation capacity I was asked to contribute to the selection of the various managers who had volunteered for the role, and to provide support to them once appointed.

It was agreed with the KWA sponsors that whilst senior-level decision-takers and policy makers would be the primary respondents of my inquiries, stakeholders at other levels of the organisation would also be engaged as a way of triangulating issues, and also to broaden acceptability and corroboration of possible outcomes.

Each workshop (described in the next section) was attended by the CMT (consisting of 3 KWA senior officers) and 17 participants (KWA senior managers, including the Managing Director, and a representative cross-section of departmental stakeholders). To ensure continuity of discourse and opportunity for learning, the CMT and the same 17 participants attended all workshops. Whilst my role was to facilitate the workshops (with support from my two co-facilitators), it was agreed with the sponsors at the outset that responsibility for outcomes rested with the CMT.

Table 2 provides a summary of the activities and decisions taken by workshop participants, the CMT, and in some cases the KWA board of directors, during the period of research, and serves to illustrate some of the key aspects of the inquiry. The organisation continued with the change management programme after my involvement ended, and therefore, any impact that the research may have had on the organisation's performance is not described here as it was not possible to return to the organisation to assess possible outcomes.

Table 2 Change Management Programme milestones

No.	Activity	Key Aspects of the Inquiry	Date
1	'Organisation Review' conducted and Report produced. Findings presented to the KWA senior management team in my role as consultant	▪ 66 improvement areas identified for consideration, prioritisation and implementation. (Please refer to Appendix 7) ▪ KWA senior management concurs with the findings of the review	December 2004 June 2005
2	First workshop held (24 June 2005) and Report produced. Workshop attended by17 participants, facilitated by myself as researcher	▪ Systems approaches introduced ▪ Vision agreed ▪ Mission Statement agreed ▪ 9 strategic aims developed and agreed	June 2005
3	Second workshop held (06 September 2005) and Report produced. Workshop attended by the same17 participants, facilitated by myself as researcher	▪ Systems approaches reinforced ▪ Progress of Change Management Programme reviewed ▪ Scoping of Corporate Plan developed ▪ Performance measures & targets agreed	September 2005
4	Proposal submitted to the KWA Board by myself detailing the need for a permanent internal change management team (CMT)	▪ 3 senior staff appointed to the CMT on a permanent basis with the aim of taking ownership of the change management programme and for implementation of agreed initiatives	September 2005
5	Proposal produced by the CMT on prioritisation methodology for ranking the improvement areas suggested in the organisation review Report (facilitated by myself)	▪ Identification of 18 broad improvement areas for implementation under the Change Management Programme ▪ Improvement areas approved for implementation	October 2005

No.	Activity	Key Aspects of the Inquiry	Date
6	Proposal on a company-wide Communications Plan including the development of a questionnaire for the Change Management Programme produced by the CMT (facilitated by myself)	▪ Company-wide communication workshops approved, and consultative sessions held with employees and trade unions ▪ Structured questionnaire disseminated and findings analysed. Suggestions and concerns taken into account in the 'Improvement Plan'. (Details of the questionnaire and employee feedback are provided in Appendices 6 & 9) ▪ Published vision, mission statement and strategic aims on the company website ▪ Change Management Programme update presented to the wider organisation at the communications workshops held on 14 November 2005, 20 December 2005, 17 January 2006 and 08 March 2006	November 2005 to March 2006
7	Proposal on pilot study to assess IT skills of staff produced by the CMT (facilitated by myself)	▪ Pilot study using structured IT questionnaire conducted in Trivandrum by the CMT. This is not described further here as IT aspects were not directly associated with the key areas of research interest	November 2005
8	Third workshop held (18 March 2006) and Report produced. Workshop attended by the same17 participants, facilitated by myself as researcher. The CMT played a leading role in the workshop as a means of developing facilitation skills and ensuring sustainability of systems approaches	▪ Systems approaches and management of workshops handed over to the CMT ▪ Progress of Change Management Programme reviewed, including development of 'Reforms and Improvement Plan'	March 2006
9	Reforms and Improvement Plan developed by the CMT, identifying issues that could be completed either in-house or through external assistance	▪ KWA Reforms and Improvement Plan accepted by KWA Board	May 2006
10	Proposal on company-wide study to assess IT skills of employees produced by the CMT, based on pilot study results	▪ Study conducted/results analysed ▪ Computer awareness training programme developed for employees. KWA Board approves the outsourcing of this activity	July 2006 August 2006

No.	Activity	Key Aspects of the Inquiry	Date
11	Separation of Projects and O&M Roles. Proposal developed and presented by the CMT	▪ Format for baseline data collection agreed and implemented. ▪ Organisational changes approved by the Board and effected	August 2006
12	Non-working meters study established and managed by the CMT	▪ List of customers with non-working meters generated for 24 revenue collection centres ▪ Meter replacement programme agreed and implementation started	September 2006
13	Customer Charter prepared by the CMT	▪ Preparation of a Customer Charter and circulation to finalise. Charter published on the KWA website	October 2006
14	Fourth workshop held (26 October 2006) and Report produced. Workshop attended by the same17 participants and was facilitated by the CMT supported by myself	▪ Support and guidance provided to the CMT by myself for continuing with systemic approaches ▪ Reforms programme progress reviewed, and changes made accordingly ▪ Actions needed to satisfy the KWSP loan agreement identified, and plans put in place to assign/achieve the actions	December 2006

Source: this thesis

A number of themes and lessons can be inferred from the above Table. For example, as the inquiry progressed and the CMT progressively took on more responsibility for the workshops and the change management programme, they tended towards aspects that were either more familiar to them or aspects that were of more interest to some participants or members of the team. For instance, a number of the initiatives related to IT which was outside the scope of this research but worthy of further investigation in relation to it. Perhaps the biggest issue relates to the conceptual framework on which the research was devised in the first place. For example, as the workshops progressed, there was a need to balance tensions between a desire to deliver short-term outcomes with potential longer term benefits associated with the experiential learning process and the iterative process of action and learning intended by the inquiry. This to some extent was in conflict with the

overarching philosophy and research design, and therefore considering my role as researcher as opposed to a consultant, I struggled with this duality of 'interests' early on. These aspects are analysed later in the thesis.

V.3. My Role as Facilitator

Aided by a KWA CMT, I assumed a facilitation role at the workshops, thus enabling KWA to develop in-house capability for sustained and practical improvements to take place. My facilitation approach tended towards that of counsellor or coach, which according to Gable (1994) is relevant to my contextual setting because inevitably I brought experiences from other projects, and consequently I favoured empowerment of participants, emphasising that people must not only take part in, but must also own the change process, as promoted by others (World Bank, 1996; Stacey, 2001; European Commission, 2003; Bell & Morse, 2010).

As outlined in Chapter IV (section IV.6), the workshop setting provided the ideal opportunity for the qualitative nature of my research based on phenomenology, with descriptive, in-depth inquiry, personal perspectives and experiences, using words and observations to express reality, as suggested by Patton (2002a). According to Gable (1994), "qualitative research emphasises the context in which the behaviour takes place and the importance of attempting to see the behaviour from the position of its originator. This requires direct, first-hand, intimate knowledge of a research setting" (*ibid.,* p114). My part in the inquiry and how I was perceived by others were therefore important considerations in devising the study. For example, according to Atkinson (1986) "a facilitator cannot be an objective observer - political levers are pulled and inevitably there is some element of manipulation by the facilitator"...adding that "a more neutral stance would be preferable" (*ibid.,* p27).

The way I facilitated the workshops came about partly through my own previous experience and drawing on other knowledge of facilitation. For example, Atkinson's

(1986) description of the facilitator requiring counselling skills is appropriate to my style. I tried not to be biased, but from some perspectives (as suggested by Atkinson), I was not an objective observer. For instance, I tended to push participants towards resolving conflict and achieving harmony, whereas I could have taken the opposite stance and maintained conflict as a healthy characteristic amongst participants. I also believe in devolved decision-making as an important process underpinning how organisations operate, and therefore, perhaps inadvertently my style may have influenced participants' thinking towards a devolved model of responsibility in their own organisation. Where these views accorded with those of KWA's senior management, it may have been considered by the attendees that 'political levers had been pulled'.

In contrast to Atkinson's (1986) views, Bockenhoff (2011) focuses on facilitation as a means of avoiding failure in change programmes because of what he sees as missing sensitivity of executives when talking to their employees. Bockenhoff (2011) suggests that "a manager's ability to be empathetic, and put himself or herself into the employees' shoes, is what makes a crucial difference. Facilitating, as a new form of advice, is different from traditional counselling. Facilitators, in this definition, are truly like therapists who listen, ask about personal problems and talk to the employees" (*ibid.,* p365). From the perspective of sustaining the change management programme beyond the life of the research, Bockenhoff's views are highly relevant to the workshop inquiry in terms of the CMT progressively assuming the facilitation role.

V.4. Participatory Workshops

Over an 18-month period from June 2005 to October 2006, 4 workshops took place in which 17 KWA senior managers and a cross-section of staff from various disciplines identified and expressed problems within and outside the organisation. These workshops were organised and facilitated by myself, and supported by two other consultants (involved with institutional strengthening aspects of the Kerala Water Supply Project) who

agreed to co-facilitate the workshops. I believe the participants were fairly characteristic of the organisation in terms of their range of personalities. Represented in the group were conservatives, strategic thinkers, pragmatists, cynics, optimists, those who picked up new ideas quickly, those who struggled with new ideas, those who were argumentative, some who were brash and some who were shy. The challenge for me, as facilitator, was to try to forget these labels I had mentally given participants, and respond fairly and with the same enthusiasm to all of them, although I was mindful that inevitably there were imbalances in the power of individual participants.

V.4.1. Workshop Process and Outcomes

Participants generated and debated goals, objectives and interventions, for better management and improved institutional arrangements. The initial workshops included formal presentations to generate and guide discussions, along with the use of SWOT[24] and PEST[25] in order to provide structure and familiar tools for analysis. SSM was used as the overall framework for the study. The ultimate aim of the workshops was for stakeholders to consider practical outcomes to problems identified, that the organisation could implement, whilst from a systems perspective, provide an experiential learning opportunity.

The concept that the various problems expressed could be viewed as human activity systems requiring rational intervention [as described by Checkland (1981) and Khisty (1995)] was enforced at the workshops, where workgroups and various 'break-out'

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[24] SWOT is the acronym for Strengths, Weaknesses, Opportunities and Threats. By definition, Strengths (S) and Weaknesses (W) are considered to be internal factors over which one has some measure of control. Also, by definition, Opportunities (O) and Threats (T) are considered to be external factors over which one has essentially no control. SWOT Analysis is the most commonly-used tool for audit and analysis of the overall strategic position of a business and its environment. Its key purpose is to identify the strategies that will create a firm specific business model that will best align an organization's resources and capabilities to the requirements of the environment in which it operates.
Source: http://www.managementstudyguide.com/swot-analysis.htm [23/01/07]

[25] PEST analysis is the acronym for Political, Economic, Social, and Technological analysis and illustrates a framework of macro-environmental aspects used in environmental sensing. PEST analysis is an element of the external analysis when performing market research and gives an overview of the different macro-environmental aspects that the company has to take into consideration. Source: http://competitive-intelligence.mirum.net/analysis-a-crucial-step/pest-analysis.html [23/01/07]

sessions were used to actively involve participants. Involvement was encouraged through engaging participants on exercises to identify and describe the problems at stake, and to debate and conceptualise potential solutions. This approach was used initially in small workgroup sessions to encourage participation, open discussion, and free expression of problems based on differing perspectives.

As mentioned earlier, Indian society and institutional culture are characterised by hierarchical structures (Singh, 2003). Based on these cultural issues, there was concern initially that some participants (lower ranked officials who were asked to attend in place of their respective managers) may be constrained by rank, seniority, caste, sex or lack of jurisdiction. Surprisingly this was not a major problem; whilst I observed that junior staff tended to defer much to the senior managers in preliminary sessions, as workshops progressed, participants became more confident and no longer felt compelled to do so. In fact, the more junior staff tended to be more progressive in terms of 'thinking outside the box', whilst some of the more senior staff (who had progressed through the ranks) were more concerned with the uncertainties of changing tried and tested systems, methodologies and practices that in their view had stood the test of time.

Another surprise was that female attendees, especially the most senior female officer, tended to be more vocal and passionate about the issues at stake, and appeared to command attention from the male-dominated group. Later the same senior officer would become one of the key contributors, and through her active involvement provided a sense of urgency and focus for following up the actions agreed at group sessions, with regard to implementing and operationalising the new ideas that came out of the workshops.

In the workshops, the participants split into facilitated groups where they defined and scoped problem situations, generated conceptual models of relevant systems, and discussed potential management actions. Each group fed back their findings, thoughts and ideas to the other groups in plenary sessions which were designed to provide further

discussion and debate on each of the group's findings, thus stimulating an iterative process of inquiry. The iterative nature of the process led to further re-modelling, and eventual agreement on the key issues identified. Resultant discussions (and sometimes heated debate) aided the process of refining, classifying and grouping the various issues.

Whilst I took care to ensure that everyone had the opportunity to contribute and that the workshops were not overly dominated by the more vocal individuals, the overpowering nature of some participants was a concern. I was able to manage this for the most part in the earlier workshops but this became more difficult once the CMT assumed the facilitation role. I observed that the CMT struggled in some cases to assert their authority when tensions emerged. This was more pronounced in cases where senior officials were involved as the CMT tended to be rather submissive to their authority. Whilst general consensus appeared to be reached on most issues, the influence of some participants over others will invariably have influenced the direction of the programme.

Also, although workshops were not planned to devise solutions to problems, some did take place and consensus was reached on issues such as the vision, mission statement, and strategic targets.

By the third and fourth workshops, I had observed that most of the participants had gained confidence in actively participating amongst their peers and in the presence of high-ranking officials, and in openly expressing problems from their own perspectives. This led to a major shift in the way that problems were perceived, and how they might be tackled. For example, early on, the majority of problems were expressed in terms of physical infrastructure aspects that required engineering solutions to resolve them. Later, it became evident that it was the human activity aspects that required intervention, and that the key to improving organisational performance was more to do with managerial, rather than infrastructure, capabilities.

A number of key points can be drawn from the experience of combining participatory approaches with SSM:

- Whilst I tried to be impartial, I acknowledge the subjectivity of my own interpretation of events as they occurred, and as facilitator tried to allow the participatory process to unfold as suggested by (Davies & Ledington (1991) and Jackson (1985)
- Whilst all participants had the opportunity to contribute, a balance had to be struck between allowing free expression of ideas and ensuring that workshops were not overly dominated by the more vocal individuals
- Accommodating different perspectives appeared to be less problematic over time as participants began to appreciate the viewpoints of fellow stakeholders as they described the problem situation from their own perspectives. I took caution from literature on consensus (Connelly & Richardson, 2004; Williams, 2009)
- As the workshops progressed, it became evident that combining participatory approaches with the iterative nature of SSM caused the problem-solving system to evolve as workshop participants underwent an experiential learning process as described by Atkinson & Checkland (1988)
- As the participatory process evolved, it became increasingly evident that through engaging with systems traditions, participants underwent a major shift in thinking about how problems were perceived and how they might be tackled (Checkland, 1999). For example, there was a shift in thinking by many participants that water shortage problems previously perceived as requiring engineering solutions to fix them, instead required management solutions that involved better governance of existing water resources.

A brief analysis of each of the workshops is provided below. Please refer to Appendices 2-5 for further details including the deliberations and outcomes of the workshops.

The first workshop

The first workshop was held on 24 June 2005, for the 17 senior managers and a representative cross-section of departmental stakeholders to review the findings of the organisational review study, and to stimulate debate about the issues at stake within (and outside) the organisation. The workshop was facilitated by myself (assisted by two co-facilitators) and led to the scoping of ideas for exploration at later workshops. In order to minimise distraction and the temptation for participants to be available for the 'day-job', the workshop was held off-site. I began the workshop by spending a few minutes explaining the workshop 'rules':

- Participants should interact as if all were of equal rank in the organisation
- It is positive to put forward opposing viewpoints. This is not to be considered as conflict in the group, but a valuable exchange of alternatives
- All ideas are good ideas - we want lateral, creative thinking. Every idea, no matter how offbeat will be fed into the melting pot. Without this creativity we are in danger of missing the really exciting opportunities
- Everyone is here to participate fully and this means not holding the floor and thus excluding others from participating. As facilitator, I will try to ensure that all have a chance to participate

In using the rules of no rank and full and equal participation I do, however, recognise that this cannot be achieved fully. Inevitably there will be inequalities based on intellectual ability, power and status. However, by introducing the rules and by my style of facilitation, I attempted to create an environment where these constraints were minimised. I reinforced the rules at all workshops and I believe they were accepted and complied with by the participants. All Managers tried hard not to give an impression of rank, although I observed that this caused some discomfort to one or two of the more senior officials. I also observed early on that one participant in particular was a catalyst to lateral thinking by

constantly challenging traditional viewpoints. I encouraged the idea of lateral thinking as this was similar to my own style, although this was uncomfortable for some participants.

The first workshop was used to introduce a systemic perspective and the notion that the process of inquiry is itself, a useful means for learning and action. As part of the research effort in the preparation phase, I developed the following "Organisational Model" (Figure 15). This was used in the first workshop to stimulate debate and to encourage those within the organisation to stand back and consider organisational processes as a whole and recognise their interconnectedness; i.e., to take a systems perspective.

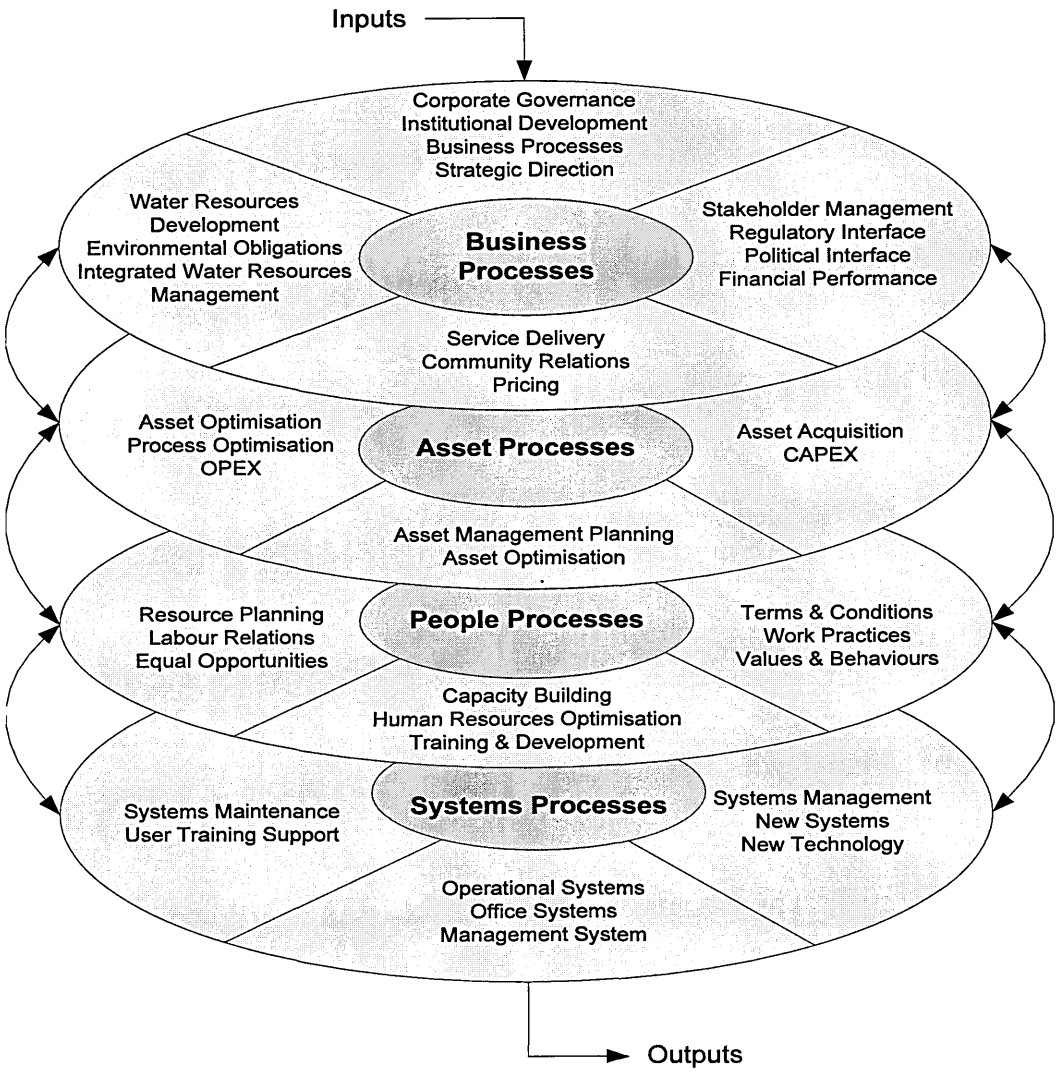

Figure 15 Organisational Model devised to introduce a systemic perspective

Source: this thesis

Figure 15 was devised from information gathered during the pre-research phase and illustrates the interconnectedness of the four key process areas depicted, as well as recognising different types of processes. Each process area is represented by a disc in the diagram above. This model reflected back to staff the language they use within the organisation, including its own use of the term 'System' which is different to the way in which I used the language of systems in a systems theoretical sense. I used this model, as a heuristic device, suggesting that each of the discs represents a system in its own right, and forms a sub-system of an overall organisational system (as expounded by Kast & Rosenzweig, 1974), bounded by the arrows representing the various internal inputs and outputs of the organisation. The diagram was intended to depict the idea that a lack of attention in any of the sub-systems could have an undesirable effect on the 'stability' (effectiveness) of the organisational system as a whole. For example, the model attempted to draw out the perception within the organisation that a lack of attention to developing human resource capacity (within the 'People Processes sub-system') could have a knock-on effect on the ability of the organisation to devise and operate efficient practices in the other three process areas, and therefore, inhibit the effectiveness of the organisation as a whole. The external, or wider environmental system impacting on the organisational system, is implicit rather than labelled explicitly, as the main area of interest to those within the organisation, was in how improvements can be brought to bear on the internal operational and institutional aspects of the organisation through framing the organisational processes as a system. The model was used at the initial workshop to help consider the key processes within the organisation, and to discuss feasible and desirable changes that could be made within them.

It was encouraging that the systems approach was accepted and embraced by the participants (although tentatively at first), who were happy to take on-board the new concepts. Whilst unfamiliar with such approaches, enthusiasm for change was being led by

the Managing Director, who viewed this initiative as an opportunity for lasting results, where other initiatives (using more familiar approaches) had failed to deliver. The workshop provided the opportunity for participants to share varying, but equally valuable viewpoints, and it was evident that the process employed helped to bring clarity to the problems identified, and at the same time, provided a learning opportunity for participants to think about and articulate their own arguments. As the workshop progressed a wealth of rich information was fed into the process, and participants were beginning to relax and increasingly were building on each other's ideas, rather than relying solely on their own thoughts.

The workshop allowed participants to:

- Articulate and debate some of the key issues at stake within and outside the organisation. Discussions were prompted by the issues identified during the pre-research phase. The first break-out session (group work meetings) addressed the internal/external drivers of change that would need to be considered to improve the problem situations identified. The findings of the workgroups were presented at the plenary sessions which later led to the modelling of feasible and desirable initiatives for change
- Develop a vision and mission statement for the organisation. Whilst each group had described their own vision and mission statements, there was a high degree of correlation amongst the groups, and a consensus view was reached at the facilitated plenary session. The vision, mission statement and strategic aims were later published on the company's website (see Appendix 2).
- Articulate the key strategic aims for the organisation. The strategic aims were formulated as a result of the second break-out session, which followed the same approach of group discussions, feedback, debate and mutual agreement.

The purpose of this preliminary workshop was to build on the understanding of the key issues faced by the organisation by starting to identify the ethos that the participants believed was most important for the company and to come to a shared understanding of the future. Participants were also starting to identify gaps between where they wanted to be, and where they were now. However, in systems terms, my concern was that the participatory nature of SSM was not so apparent early on and that most of the learning appeared to be experienced by the consultants rather than members of the organisation, as suggested might be the case by Galliers *et al* (1994). I was concerned that the lack of participation could lead to lost opportunities for increasing shared understanding within the organisation. I therefore sought for ways to gain more meaningful participation from participants, and still using SSM to underpin my work, began experimenting with various workshop techniques in my role as facilitator. By encouraging a more interactive approach to stakeholder engagement I observed that participants increased their shared understanding and started to develop new organisational beliefs and directions. At this point I realised that the essential nature of my work was facilitating changes in organisational behaviour. Reflecting critically on the first workshop I realised that the systems model of KWA presented in Figure 15 was in practice not strictly of an adaptive whole (as defined by Kast & Rosenzweig (1974)), when considering the influences of some departments over others. Workshop participants repeatedly emphasised the administrative complexities placed on them by internal departments or as a result of wider governmental jurisdiction. Therefore, whilst the maximum amount of cooperation is sought, it is recognised that full cooperation can never be achieved because of conflict of interest. For example, the internal audit department had jurisdictional powers over others and therefore must have had a significantly different world view (following the argument of Atkinson & Checkland 1988).

The second workshop was held on 6 September 2005, for the same participants to review and discuss the agreements reached at the first workshop, and to decide whether the vision and mission statements were still appropriate and desirable. The second workshop built further on the strategic aims put forward by participants. The aim of the second workshop was also to stimulate debate about the likely contents of the organisation's first corporate plan. The approach taken at the second workshop was the same as at that taken at the first, where I (as facilitator) presented the findings from the first workshop and described the aim of the workgroups in terms of debating the issues at stake in relation to the strategic aims. At the start of the workshop, participants were reminded of the workshop rules. The workshop enabled participants to articulate and develop appropriate and workable performance measures and targets that could lead to achievement of the strategic aims (agreed at the first workshop), in the local context. The discussions around the contents of the corporate plan generated healthy debate on the key issues faced by the organisation from within the organisation as well as from the wider environment, and to develop a notion of where the organisation's strengths and opportunities lay in terms of future strategic direction. As with the first workshop, through stimulating debate, this led to expression of the problems identified in meeting each objective, and scoping of desirable and feasible change in the organisation's methods, that could bring about the improvements sought, in both short-term objectives, and long-term strategy.

The workshop enabled participants (through break-out sessions, workgroup discussions, presentation and debate at plenary sessions) to:

- Scope the organisation's first corporate plan
- Agree on performance measures and targets that could complement the strategic aims, and the issues and constraints that might be encountered, and how these might be overcome in order that the aims could be achieved (see Appendix 3).

The performance measures agreed at the workshop were subsequently summarised and presented to the KWA Board. The Board agreed that these would be incorporated into performance objectives for the organisation, to be adopted throughout the State. The Board also agreed (on 1 October, 2005) that the CMT should prioritise the 66 improvement areas (identified during the pre-research phase), and push ahead with implementation, with support from myself as facilitator. However, to encourage ownership and support for implementation, it was agreed that Communications Workshops (described below) would be held across the State in order to widen the level of participation amongst employees and trade unions, and to encourage 'buy-in' to the change initiative through the sharing of information. The Communications Workshops were intended to disseminate information on the change initiative thus far and also to encourage debate and to seek ideas and suggestions from the wider organisation. This was seen as an essential step, if the ideas put forward were to be operationalised in the long-run.

The third workshop was held on 18 March 2006, for workshop participants to finalise, through group discussion and agreement, the work items to be implemented in the first phase of the Change Management Programme. The Programme was approved by the KWA Board for implementation in May 2006. As a result of open discussion and through accommodating viewpoints, the workshop enabled participants to categorise work items, and split them into those that could be completed in-house with the support from the CMT (supported by myself), and those that would require external assistance in the form of additional specialist consultancy contracts (details are provided in Appendix 4). A significant development was that the CMT were involved with the facilitation of the workshop and group discussions as a means of introducing them to the systems thinking and participatory concepts applied at the initial workshops, with the aim of ensuring that the organisation was equipped to continue such activities without external assistance in the future.

The fourth workshop was held on 26 October 2006, for workshop participants to deliberate, through interactive presentations and group discussion, a number of issues presented by the Japanese Bank for International Cooperation' (JBIC) review mission (the project funding was being provided by JBIC who were imposing a number of targets as a precondition for drawing down the next phase of the project loan). The workshop was also devised to enable participants to:

- Review the KWA Reform and Improvement Plan approved by the KWA Board in March 2006, and the support it provides to meeting the JBIC loan requirements
- Explore the key performance targets previously agreed, and the acceptability of these across the organisation
- Explore the corporate and business planning process, and the next steps needed to implement the Reform and Improvement Plan
- Provide feedback for Board presentation scheduled for December 16, 2006
- Communicate progress and future plan of action for the Transformation Programme

In the spirit of participation and ownership, the workshop was opened by one of the more progressive participants who had been involved with the three previous workshops and had become a catalyst to lateral thinking by challenging traditional viewpoints. The CMT played a major role in facilitating the workshop and the ensuing discourse amongst participants. The presentations delivered to open the workshop were designed to be interactive, and encouraged debate on a number of key issues that required resolution and agreement. The CMT took responsibility for recording the rich information from workgroup and plenary discussions which I was able to compare with my own observation of events as they unfolded. Appendix 5 provides details of the workshop outcomes. The nature of the outcomes of this workshop included an agreement to hold further workshops, including Communications Workshops at an organisation-wide level where the CMT

would act as facilitators. This illustrates to some extent the enthusiasm for adopting systems approaches introduced at the workshops, and the organisation's commitment to continuing with systemic methods to bring about feasible and desirable change beyond the life of the research effort.

V.5. How Systems Approaches Underpinned my Inquiries

Systems approaches were introduced iteratively to underpin my inquiries in the following way.

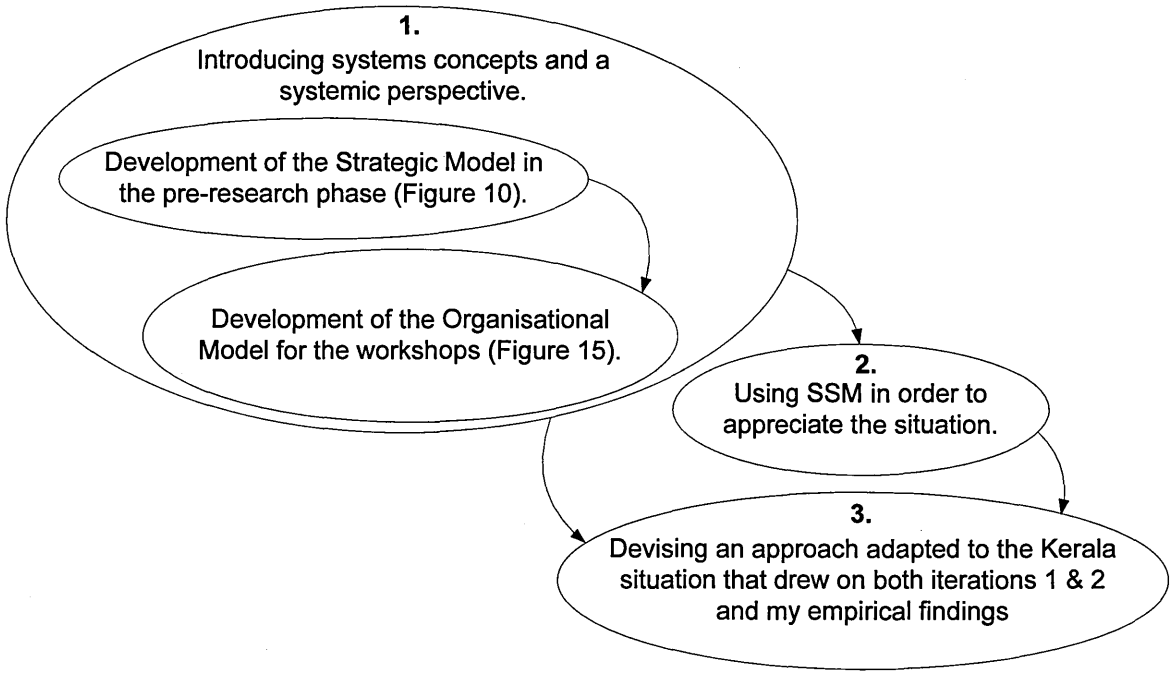

Figure 16 How systems approaches underpinned my inquiries
Source: this thesis

Iteration 1 involved the development of two models. The Strategic Model (Figure 10) was developed as part of the pre-research phase (see section II.4.2) and the Organisational Model (Figure 15) described in the previous section, was developed to introduce a systemic perspective to organisational development interventions. Both models were used to help KWA stakeholders look beyond the individual parts of the organisation and to appreciate the connections when the organisation is considered as a system. The second iteration involved the use of SSM to appreciate the situation as explored at the workshops (described below), and iteration 3 involved devising an approach adapted to the Kerala

situation drawing on both iterations 1 & 2 and my empirical findings (see section VI.3.1). My presentation of findings in relation to combining approaches that underpinned my inquiries is provided in the next chapter (see section VI.2.3).

The focus now turns to how SSM was used to underpin and guide my inquiries and how SSM techniques were used by workshop participants to express problem situations, develop conceptual models, and compare models to the real world in order to devise initiatives for change. Initially I used SSM in a Mode 1 sense – systematically rather than systemically (Kreher, 1994; Checkland, 1999). The five key stages of SSM as adopted for my inquiries after Checkland's (1981) "Four-Activities Model", are depicted below (Figure 17).

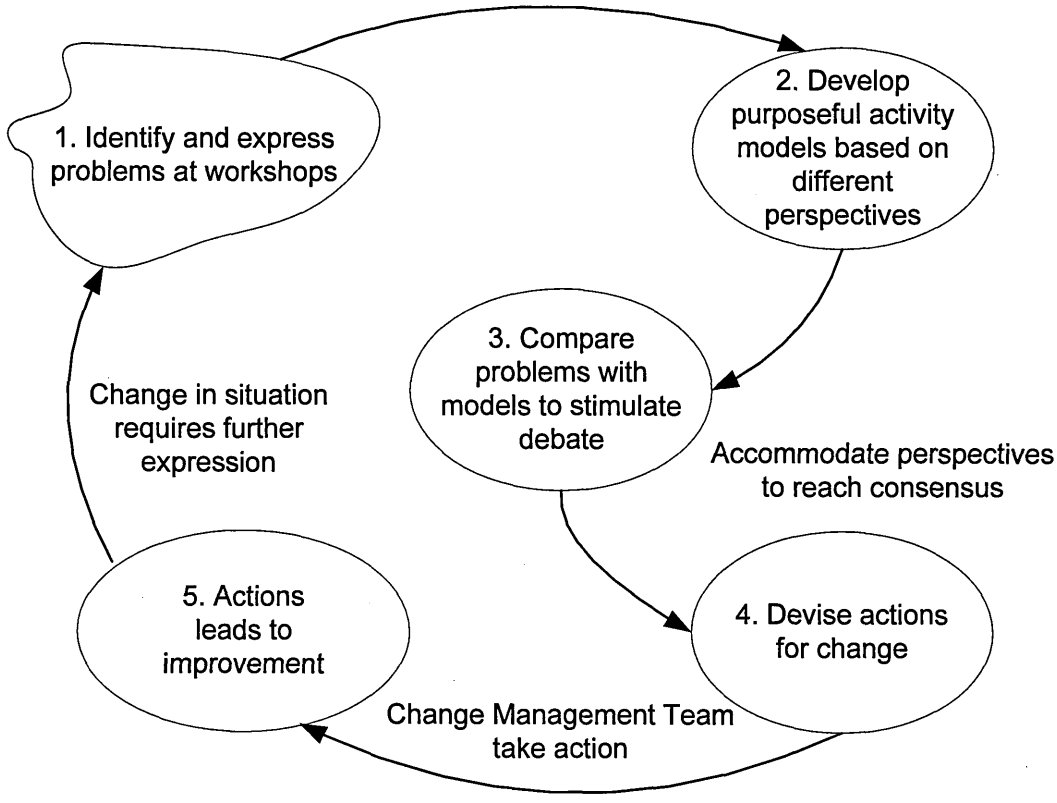

Figure 17 The five key stages of SSM adopted for my inquiries

Source: After Checkland (1981)

Each of the 5 stages depicted in Figure 17 is briefly described below in order to illustrate how each stage was applied in practical terms at the workshops.

1. Identifying and expressing problems

The workshops were devised to facilitate communication amongst stakeholders in order to identify and express problems. I view SSM as a communication system which provides a vehicle for participants to develop a shared vision of the future and decide strategies to move closer to that vision. I emphasise shared vision shared understanding rather than consensus, as 'true' consensus cannot be achieved, as individuals will still maintain their own value systems. Lively discourse ensued at all workshops, although early on it was apparent that some participants (subordinates) felt constrained from being able to openly express problems in the presence of higher rank officials. It was evident as the workshops progressed, however, that this became less of a constraint. Combining formal presentations with informal discussion helped participants to get actively involved with discussing the problems faced by the organisation, from their own perspectives. Identifying and expressing problems soon became a collaborative process which facilitated a qualitative understanding of problems and promoted cooperation amongst competing perspectives, such as poor work culture and ethics versus the lack of training or delegated responsibility. In this way, SSM informed the overall approach, as well as the techniques and guidelines to identify and express problems. Identifying and expressing problems involved:

1. Collectively articulating problem identification questions. In order to start the process of encouraging the identification of problem questions, an overview of the organisation review study was outlined, as this had already identified a number of areas requiring improvement. This was presented by me at the outset of the research in order to provide context and understanding, and to guide discussion during break-out sessions. This enabled participants to think about and describe the problems as they saw them from their own perspective. In my role as researcher here, or participant/observer according to Fell & Russell (2000), care was taken to ensure that based on my contextual knowledge I did

not overtly influence the actors involved and thus the workshop outcomes (Checkland & Poulter, 2006).

2. Diagramming, or developing "rich pictures" as suggested by Checkland (1999), and exploring qualitative understanding of problems from the different perspectives of the stakeholders involved. Pictorial representation of problems was useful in identifying relationships amongst competing demands, and perceptions of stakeholders, and made it easy for stakeholders to see how their actions might affect the system as a whole. These were developed through facilitated discussions within the break-out groups, and enabled the capture of the variations in participants' perceptions which later led to compromise (on the part of some actors), and common understanding of the issues at stake. A rich picture of the problem situation showing the different issues and perspectives of the various stakeholders, as developed by participants at the first workshop was captured and recorded (Figure 18). The rich picture was progressively developed over time through questioning, in order to refine the problem setting.

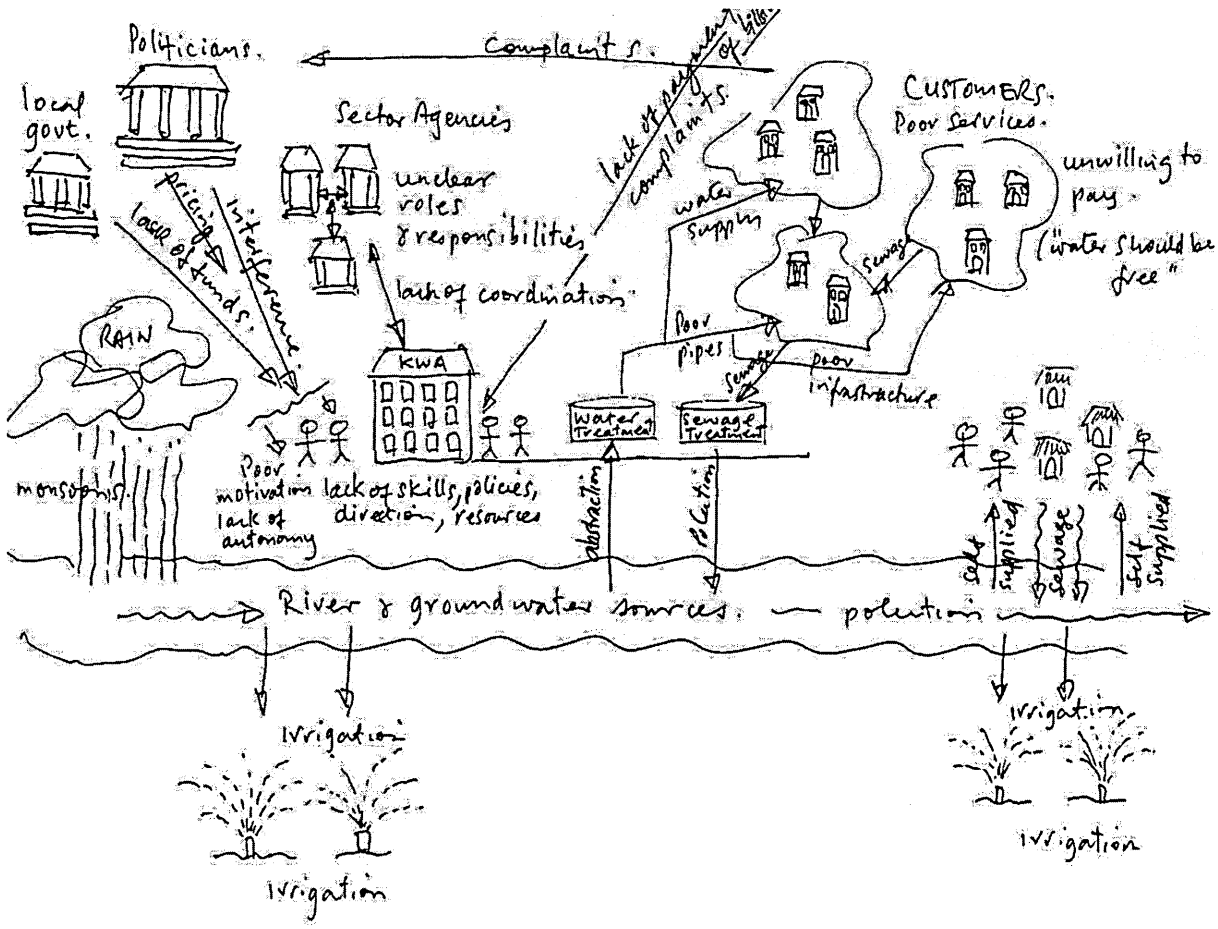

Figure 18 Rich picture of the problem situation from different stakeholder perspectives

Source: this research

3. Agreeing on the problems at stake within small groups and categorising them into thematic areas for later presentation and further debate at plenary sessions. This was an important aspect of problem identification, and working in small groups provided an environment which encouraged active involvement and open debate about issues and concerns from the different perspectives of participants within each group. This provided the opportunity to come to a shared understanding (through accommodating different perspectives) on previously intransigent views held by some actors, perhaps due to a lack of appreciation or understanding of the values or beliefs expressed by others. As mentioned earlier, consensus building can be problematic (Connelly & Richardson, 2004). Participants can be excluded in order to arrive at '*practical*' rather than '*ideal*' consensus (*ibid.,* p4). In my role as facilitator, I tried to

minimise coerced or forced consensus imposed by some participants as much as possible, to ensure equal voice and validity of perspectives of all involved. Reinforcing the workshop rules as situations arose also helped in this regard. A summary (Table 3 below) of some of the problems identified by participants at the first workshop, categorised by thematic area, provides an indication of the richness of problems expressed, and serves to illustrate the complexity of the seemingly simple task of identifying problems in ill-defined situations. The full list of problems identified by participants in the first workshop is given at Appendix 2.

Table 3 Problems identified by workshop participants

Thematic Area	Examples of Problems Identified
Internal problems related to the management of the organisation	▪ Trade union's apparent intransigence to change ▪ Lack of understanding of the IWRM approach ▪ Lack of autonomy ▪ Lack of decision-making power ▪ Lack of management and leadership skills ▪ Lack of training ▪ Poor work culture and ethics ▪ Lack of organisational discipline ▪ Aversion to new technology over job-cut fears ▪ Poor delegation and indecisiveness ▪ Poor interdepartmental working or teamwork ▪ Low morale and sense of loyalty to the company ▪ Poor internal communications ▪ Poor employee-employer relations
External problems related to stakeholder involvement and politics	▪ Poor sector coordination and interaction ▪ Lack of regulation and enforcement ▪ Political interference in day-to-day management ▪ Politicisation of water tariffs
Physical problems related to resources and infrastructure	▪ Lack of modern technology ▪ Deteriorating asset condition due to lack of funds ▪ Depleting water sources ▪ Water pollution and lack of water source protection

Thematic Area	Examples of Problems Identified
Customer problems related to services and social aspects	▪ Lack of community coordination and involvement ▪ Inability to meet service standards and supply standards ▪ Lack of social responsibility ▪ Indifference to improving services ▪ Poor external communications

Source: this research

The problem identification exercise provided a wealth of information that was fed into the conceptual modelling stage.

2. Conceptual modelling

The aim of conceptual modelling was to stimulate further insight into the problems identified, as well as to clarify the relationships amongst the actors involved. The identification and conceptualisation of relevant systems were based on multiple perspectives and therefore this led to a variety of themes that were identified and modelled as systems of purposeful activity (Checkland, 1981). For example, engineers were keen to model systems based on physical problems such as poor asset condition, pollution, over-abstraction of resources, lack of equipment and tools, etc., requiring engineering solutions to fix them. Managers were keen to model systems based on more intangible issues such as government interference, poor staff motivation, lack of liaison between sector agencies – all requiring 'softer' management solutions. Perhaps not surprisingly, participants pointed to problems that they considered were not of their own doing. For example, managers' talked about the lack of skills in subordinates, malpractice, poor engineering solutions, etc., and engineers' talked about the lack of resources such as budgets, training and incentives, or the lack of management support.

Developing models in this way (based on the various themes that evolved), was useful in looking at problems from different angles which later helped in uniting team members in the collaborative development of models based on multiple perspectives rather than on

disparate views. In turn, this helped the work-group participants to think about possible management scenarios that might be put in place to bring about improvements based on teamwork and cooperation, rather than the usual approach of referring to higher management for solutions or decisions. I felt that the extent to which shared understanding was developing was illustrated by the relative ease with which participants were guided into agreeing with high-level conceptual models (based on the example organisational model (Figures 15) introduced as a template at the first workshop)). Perhaps even more significant was the extent to which the models differed from the current activities of the various departments. In my facilitation role I limited my involvement to making some suggestions of alternatives, but tried hard to let the models emerge from the participants.

This work fed into the third stage for the purpose of stimulating debate on change.

3. Stimulating debate on change

Stimulating debate on change that could lead to improvements in the problem situation was brought about through comparing the conceptual models developed from Stage 2, with the real world situations expressed in Stage 1. Again, the accommodation of multiple perspectives was a key feature. Each model was used to direct inquiry to develop further knowledge; and thus the cycle continued, leading to further modifications to the models, which in turn led to further debate, re-definition of problems, and refinement of models. Accommodating viewpoints in this way led to agreement on models developed by participants that covered wider organisational issues, such as improving services (Figure 19), and overall organisational performance (Figure 20). These models resulted from discussions that centred on taking a more holistic approach to improving the overall organisational system based on the thematic areas described by participants above (Table 3). The two models mentioned are depicted below (in final form). The models evolved as understanding grew, but did not change dramatically from the first versions drawn by participants.

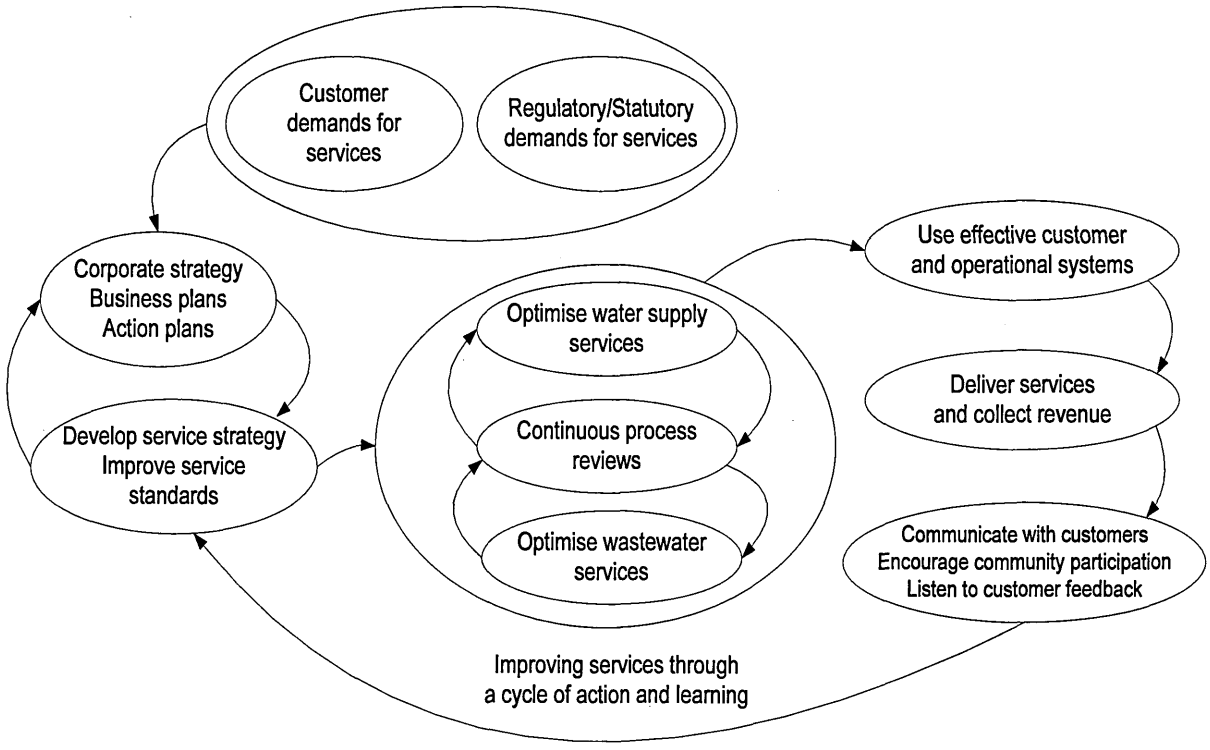

Figure 19 Purposeful Activity Model for improving services

Source: this research

This model represents the collective efforts of workshop participants and was captured and recorded to illustrate the need for an integrated approach to providing services. The model depicts the need for the organisation to put in place strategies for the provision of services that balance the needs of all stakeholders, including customers, the community and the organisation. The loop of tailoring services based on customer feedback and community participation provides the basis for continuous improvement through a process of action and learning. Based on the desire for the organisation to continue with systems methods, this model provided the organisation with a tool to improve services and social aspects, on condition that it pressed ahead with the implementation of the requirements implicit in the model. Time will tell whether the organisation will be successful in this regard. This warrants further follow-up research.

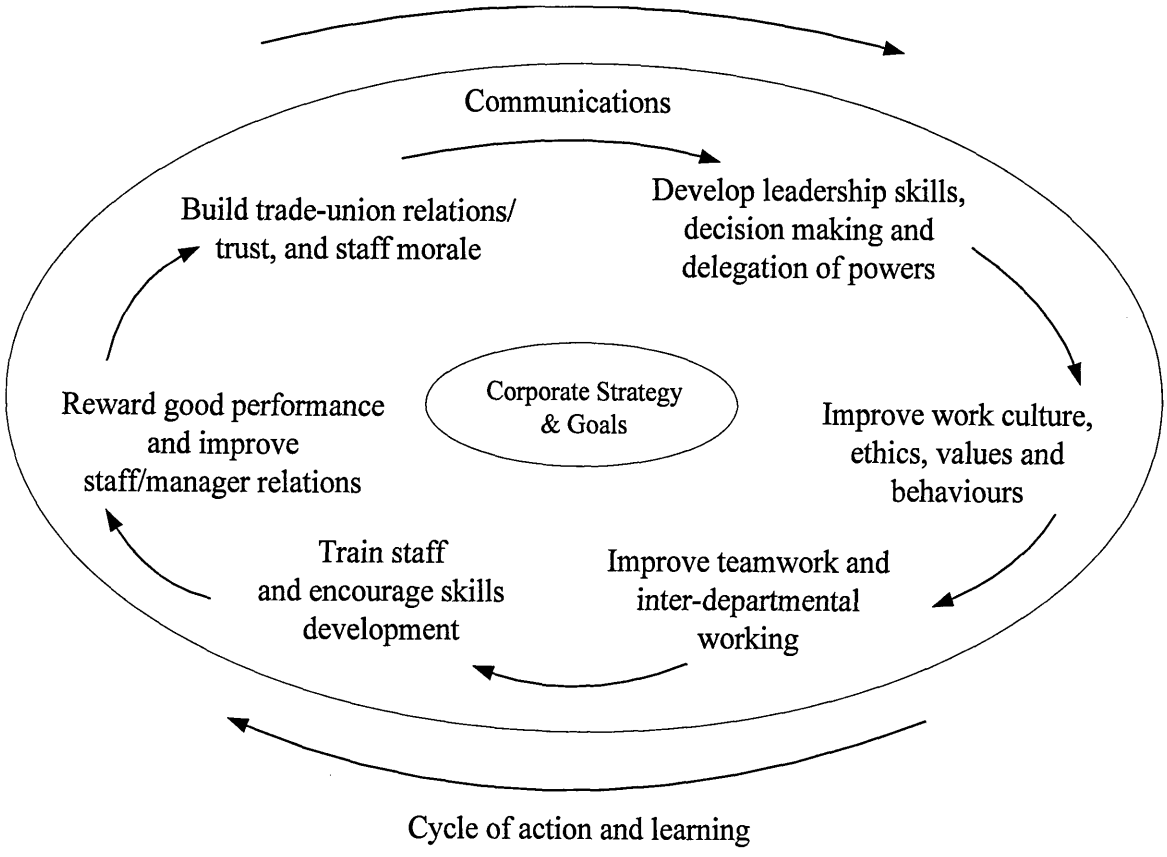

Figure 20 Purposeful Activity Model for improving organisational performance

Source: this research

The model depicted (Figure 20) represents the collective efforts of workshop participants and was captured and recorded to illustrate the need for an integrated approach to improving organisational performance. The model illustrates the need for the organisation to put in place strategies for the development of competencies at all levels and the importance of harmonious relationships between junior staff, managers, leaders and the trade unions. At the core of the model is the need for the organisation to meet agreed corporate goals, none of which can be achieved without the overarching need for good communications. This is depicted by the innermost and outermost rings of the model. The loop of improving skills, decision-making, work ethics, and culture, will lead to improved teamwork, staff morale and cooperation; and in turn, will provide the organisation with a virtuous cycle of improvement, through action and learning. As with the services model above, the organisation model provided the organisation with a tool to improve

organisational performance provided it pressed ahead with the implementation of the requirements implicit in the model.

4. Devising actions for change

The process of debating the issues identified from different stakeholder perspectives provided the opportunity for devising potential solutions that could lead to feasible and desirable change. The unique approach adopted by the organisation in this research meant that the CMT (made up entirely of KWA in-house staff) took responsibility for devising the actions that they felt were most pressing for the organisation. This was aided by the use and analysis of a questionnaire (see section V.7 below) and through seeking suggestions from employees about how the issues identified might be tackled. The various scenarios developed were fed into stage 5 which was concerned with taking action to bring about improvements.

5. Taking action to bring about improvements

The approaches employed for my inquiries generated enthusiasm for change (see sections VI.2.4 & VII.2.1) through a programme of involvement, participation and respect, between stakeholders (made up of employees, the change management team, and the KWA senior management team who sponsored the programme). The organisation's responsiveness to the new approach and their willingness to commit time and resources to gain new knowledge was encouraging. This led to the implementation of interventions that might otherwise not have been possible. Taking action in this way changed the situation (as originally conceived), requiring further expression, which made the process iterative. Again, the fact that the organisation (rather than me as the researcher) had devised and implemented a programme of change, added weight to the new approach, and ultimately gained the trust of employees (especially those in the trade unions) who were initially sceptical about the change initiative.

The value of using systemic approaches to think about the problems at stake, rather than opting for engineering solutions immediately to fix them, was clearly demonstrated at the workshops where stakeholders began to consider and debate the interconnected socio-technical and managerial aspects, i.e., demand-responsive approaches (see section V.4.1 & Figure 19). This encouraged the organisation to devise additional Communications Workshops to keep up the momentum of the transformation programme (see section V.6 below). Gradually increasing the involvement of the CMT from a facilitation role initially (where their main responsibility was in organising the workshops, preparing invitations and logistical support), to the point where they were taking the leading role, represented a crucial turning point in the programme. Developing the CMT in this way made it possible for them to continue with the systems methods employed without further support.

A New Appreciation of the Situation

Through development of a qualitative understanding of the situation surrounding poor management and governance, including the influences and constraints placed upon the KWA organisational system from the wider organisational environment, the organisation underwent a major rethinking of the problem situation that incorporated human activity in a more central role. This was manifest through wider employee engagement (described in sections V.6 & V.7) and delegation of authority from the KWA senior management team to the CMT to continue with and manage change interventions (see Appendix 10).

Previous attempts by KWA senior management to tackle problems perceived them as physical issues and targeted supply-side characteristics of the system for intervention (such as water resource development and infrastructure projects, including the rehabilitation of existing physical systems). In other words, the organisation's inability to meet the increasing demand for water was perceived to be rooted in a lack of infrastructure needed to satisfy these demands, rather than in the organisation's ability to tackle the issues in relation to good management and governance.

The shift in thinking by workshop participants about the issues at stake had implications for how they perceived the situation might be improved (see participant comments in section VI.2.3). As workshops progressed and as participants became more comfortable with the methodology used, they began to propose systemic interventions aimed at altering the characteristics that underlay the organisational state, rather than target the physical symptoms of it. These included the way in which the organisation interacted with other water sector agencies and user-groups, and the effects of organisational performance on the socioeconomic aspects of consumers. This represented a shift from a mechanistic or systematic approach to one that was systemic in nature. This was reflected in the recommendations that came out of the workshops regarding the need to continue with wider stakeholder involvement, as this was seen as critical to the long-term success of the approach. Stakeholder involvement continued with the formation of interdisciplinary task forces set up to implement a number of change interventions that were devised at the workshops, in order to improve collaboration amongst the various functional disciplines and regional offices in KWA. Change initiatives (see Appendix 10) included employee skills assessment, customer surveys, changes in departmental responsibilities and structures, devolving delegated powers, etc.

This shift in thinking from a systematic to a systemic approach caused a shift in the way that SSM was used in the workshops in the sense that the situation was now beginning to drive the process of SSM use, rather than simply applying the methodology in a prescribed systematic fashion (Kreher, 1994; Checkland, 1999). In Turner's (2008a) sense, workshop participants were beginning to use the methodology "as an interactive process before action was taken (*ibid.,* p37), signifying a change in SSM use. However, I did not use SSM in a conventional sense. My use of SSM was complimentary to my wider use of participatory methods, consistent with the synthesis of methods and ideas as described in earlier chapters related to combining methods that were both participatory and systemic. In

this sense, I used SSM as a communication system to help engage participants with the participatory nature of the inquiry.

Combining the communicative and iterative nature of the methodology with participatory approaches in this way became a vehicle for workshop participants to challenge the organisation's values as well as its processes and structures, and as such was useful in establishing the foundation for organisational change as intended by the change management programme. The fact that initiatives for change were devised, owned and led by the organisation strengthened this new approach. Also, the fact that the CMT were responsible for implementation of the recommendations that came out of the workshops is a positive sign that government agencies are open to new concepts, provided that these are practical and desirable, and can be operationalised in the local context (see Appendix 10).

V.6. Wider Participation through Communications Workshops

Up to this point of my research inquiry, the change management programme was confined to a representative sample of departmental stakeholders and senior managers who recognised the need for wider involvement. To this end, it was agreed that the CMT would lead an initiative to hold Communications Workshops with representative groups across the State.

The aim was to communicate to the wider organisation the outcomes of the change management programme thus far, in order to raise awareness, and increase ownership and learning at an organisational level. This represented a new phase in my inquiry whereby the CMT led the change management programme, with my role gradually changing from that of facilitator for the first two communications workshops to observer and coach for the final two. The aim of this final stage of the inquiry was to hand-over full ownership and responsibility for process and methods to the CMT in order that they continue with future change initiatives.

The CMT devised a plan - the "Communication Plan for the Change Management Programme" (Change Management Team, 2006), and held communications workshops at the three regional headquarters (Chief Engineers' offices) located at Kozhikode, Trivandrum and Kochi, involving the following personnel:

- Regional Chief Engineer and a representational cross-section of staff
- Members of the CMT (supported by myself)
- One or more KWA Board Members (the Managing Director, Accountants Member or Technical Member; the three most-senior KWA officials)
- Trade union officials (representing 18 unions)

Four, whole-day communication workshops were held between 14 November, 2005 and 08 March, 2006. These were devised to both inform (through sharing information and outcomes of the previous workshops) and to encourage participation from the wider organisation. To reinforce the concept of ownership, each workshop was opened by one of the company's most-senior managers (e.g. the Managing Director) and presentations were made by members of the CMT, as well as me in my facilitation role. An overview of the Kerala Water Supply project (KWSP) was provided, as well as the activities associated with institutional strengthening and change management that had previously been confined to the participants of the workshops described earlier. Surprisingly, very few employees were familiar with the detail of the KWSP, despite this being the largest single water supply project in Kerala in recent history, and with the project already running for approximately two years. The agenda of the communications workshops reflected our (the CMT and me as facilitator) attempt to bring these new participants up to speed. I had some concerns that the new participants had not had the opportunity of direct involvement in the debate and decisions of earlier workshops, but to include them earlier would have increased numbers beyond that which I considered to be a manageable level. In addition I was concerned that the holistic nature of the analysis would be lost. To overcome this we

ensured the continuity of members of the initial workshops including the senior managers and the CMT at all communications sessions, to synthesise outcomes and learning.

Whilst to a great extent the communications workshops were designed to inform employees of initiatives and decisions that had already been taken at the previous workshops, they also provided the opportunity for feedback, and generation of ideas and suggestions from employees. This was achieved through open dialogue at the end of presentations. A total of 257 comments and suggestions were recorded (see Appendix 9). This highlights to some extent enthusiasm for change, and the value of communications in terms of seeking opinions and suggestions from staff who would not normally be consulted in this way. This feedback proved invaluable to the organisation, and especially the change management team, who were tasked with effecting improvements through discussion and involvement of the wider organisation.

On reflection, the communications workshops appeared to be an appropriate approach for raising the level of awareness to the change initiative at the wider organisational level and for gaining broad agreement concerning the need for, and content of, the change management programme. As would be expected however, there were a number of reservations to the change management programme expressed by a cross-section of employees and trade unions alike (see Appendix 9). In fact, early on in the transformation process, the issue of informing and gaining support from the wider organisation and especially trade unions was cited by KWA as an essential step in maintaining the momentum of the change initiative. However, whilst some reservations were expressed, the trade union representatives at the communications workshops provided a number of equally positive suggestions and insights. Trade unions are very powerful in Kerala, especially in the public sector, and the CMT were mindful of the need to avoid problems later on with implementation of change initiatives resulting from lack of communication or involvement of employees and trade unions. It is common practice for trade unions to

organise rallies, agitations, and intimidation of senior managers (this I have experienced first-hand on more than one occasion), and to incite an environment of non-cooperation at any hint of change to work practices, terms and conditions, introduction of new or modern technology, etc., as this invokes fear of job losses in a sector that has a job-for-life ethos. The CMT noted these concerns and agreed to accommodate where possible the views expressed when reviewing and updating the change management programme which was now being seen as an on-going process.

V.7. Obtaining Feedback and Suggestions from the Wider Organisation

As well as the communications workshops, employee feedback was also obtained through the use of a structured questionnaire to gain employee opinion on the change management programme (including the prioritisation of change initiatives already identified), and to elicit further ideas and suggestions. In using the questionnaire the CMT (supported by myself) were embarking on a learning experience to understand more about methods of participation and collective learning and action, and also to reflect on what had worked (or not worked) well through engaging the wider organisation on an experiential learning process. The aim was for the organisation to apply this learning to future studies, and in that way the organisation's use of the methodology would evolve.

The questionnaire and clarification note (Appendix 6), was circulated by the KWA Managing Director prior to the communications workshops and these were also handed out at the three regional communication workshops by the CMT (see section V.6). The completed questionnaires were received and analysed and the ideas expressed were categorised into broad thematic areas that complemented the 66 improvement areas already identified during the pre-research phase (Appendix 7). The categorisation of feedback was split to illustrate the contrast of suggestions coming from employees and trade unions (Appendix 8).

The analysis was carried out by use of customised software authored with "Microsoft Visual Basic" as the front-end, and "Microsoft Access" as the back-end database. The software was used purely as an analytical tool for purposes of ranking the improvement areas based on the quantitative data generated from the questionnaire. It was not used to influence outcomes or results.

Responses were scored with the logic of analysis as follows:

Response	Score
No response	0
Very strongly agree	1
Strongly agree	2
Agree	3
Disagree	4
Strongly disagree	5
Very strongly disagree	6

For each improvement, the score of each respondent against 21 attributes was added. Then the mean score of the 26 respondents was calculated, and the improvements were ranked based on this (see Appendix 7). The lowest score corresponded to the highest priority and *vice versa*. In summary, the results of the questionnaire led to the ranking of the 18 improvement areas as shown in Table 4 below. The ranking of improvement areas was used as a basis for the organisation to prioritise the implementation of the initiatives deemed to be most important to them.

Table 4 Ranking of improvement areas based on questionnaire feedback

Broad Improvement Area	Mean Score	Rank
Information Systems	51.23	1
Management Practices	51.73	2
Performance Management	52.23	3
O&M Management	52.38	4
Communications	52.42	5

Broad Improvement Area	Mean Score	Rank
Work Practices	52.65	6
Project Management	53.35	7
Human Resource Development & Training	54.04	8
Resources	54.65	9
Financial Management	55.04	10
Corporate Management	55.15	11
Strategic Intent	55.19	12
Customer Services & Public Relations Management	55.50	13
Health, Safety & Welfare Management	56.54	14
Asset Management	58.04	15
Process Management	58.19	16
Institutional Arrangements	59.69	17
Systems Management	59.73	18

Source: this thesis

The sample size and number of questionnaires returned was not sufficiently large to be statistically significant, and therefore it cannot be assumed that the data presented here accurately represent the consensus view of the entire organisation. However, this was not the intention of the questionnaire. Table 4 provides an indication in general terms of the issues that employees considered more important than others. In terms of the change management programme, seeking this information demonstrated that action was being taken in accordance with the views and suggestions received from the wider organisation, thus adding weight to the concepts of participation and ownership. The fact that feedback was received at all provided some comfort to the CMT that the change initiative itself was at least acknowledged (if not accepted by all), and perhaps a notion that the organisation felt that change was inevitable. Staff involvement in the process was already apparent and this was viewed as a positive sign that perhaps the learning from the experiences thus far was helping the organisation embrace the idea of change. The organisation was hopeful

that continued involvement of the wider organisation might lead to wider enthusiasm for change and ownership of future change initiatives over time.

Analysis of the questionnaires suggests that employees considered the need to tackle issues of poor communication, lack of information, and poor management practices, more important (and urgent) than less tangible issues of a corporate nature, such as setting policies for systems development or customer management. Perhaps this is not surprising in an environment that has relied for so long on hierarchical management structures based on command and control principles as opposed to a more open and inclusive management approach based on employee participation and involvement. Based on my observations of involving the wider organisation, from a systems perspective, the idea that improvements could be realised through active participation, discussion and debate of the problem situation itself, was also becoming evident. This was noticeable in the behaviour and language used by an increasing number of participants over time as the inquiry widened its span of involvement and enthusiasm for change was growing. This is perhaps confirmation from the wider organisation that the research effort had usefully begun the process of enabling the organisation to think differently about the issues at stake and how these might be tackled.

Further analysis of the questionnaires also revealed that the majority of suggestions from employees were of a technical nature, with an overwhelming feeling that powers needed to be devolved from the centre to the local level with more delegated authority to make decisions. In this respect it was refreshing to see an eagerness to take on more responsibility for managing operations at a micro-level but there was a distinct lack of focus on wider organisational issues at a strategic level. This was evidenced by the absence of suggestions related to corporate or policy matters. This is perhaps not surprising, however, considering the audience was predominantly made up of lower level managers and staff of a supervisory nature. To be fair, strategic issues were deliberated at

the initial change management workshops, and it was not the intention of the communication workshops to elicit this type of information. In contrast to employee suggestions, the overwhelming feeling from the unions was that the company should not outsource activities or seek to become profit-oriented at the expense of staff welfare. As word of the communications workshops spread, it was refreshing to observe the unions' positive attitude towards the change programme, evidenced by the number of suggestions made and active participation at the communications workshops. This was not an easy road, however, as the investment in time and energy to get everyone on-board with the change management programme was considerable. In terms of the experiential learning process, involving and valuing the contribution of staff at all levels of the organisation appears to have helped in gaining acceptance for methodological approaches that may not have previously been conceivable.

V.8. Concluding Remarks

This chapter has outlined the empirical basis of my inquiries and has described my method of investigation to help the organisation make sense of the complexities faced through engaging with systems traditions. The chapter provides an analysis of how the organisation explored the various problems identified and how this led to possibilities for devising improvements through an experiential leaning process. The chapter also outlined how participatory methods combined with SSM were used in the workshop setting and how this led to a new appreciation of the issues at stake and how these might be tackled by the organisation. The challenge that emerged from this workshop process was for the organisation to explore ways in which it could take these new skills, experiences and lessons, and apply (operationalise) them in a way that was desirable and achievable in the local context. This is explored in the next chapter which critically analyses the outcomes and findings of the research effort, including the emergence of a new approach for the

organisation to continue with in their change efforts, and discusses implications for research contribution.

CHAPTER VI – RESEARCH FINDINGS AND OUTCOMES

VI.1. Introduction

The previous chapter outlined the empirical basis of my inquiries by describing the workshop-based process and method of investigation used to help KWA make sense of the complexities faced by the organisation, and to arrive at a new appreciation of the issues at stake and how these might be tackled. Encouraged by the learning experience of the workshops, the KWA senior management team were keen to continue with the change management programme and the use of systemic approaches to improve organisational effectiveness.

This chapter reports on some of the key findings and outcomes of the research. It also describes how a new approach to capacity-building and organisational development of particular relevance to KWA evolved from the process of doing the research.

VI.2. Findings

My research findings are reported below within each of the sub-sections to which they relate. These are provided at this stage in summary form to highlight some of the key points of the analysis of the empirical aspects of my research. A detailed analysis and discussion of my findings from a theoretical perspective in relation to the questions posed at the start of this research, is provided in the next chapter.

VI.2.1. Research Process and Method of Investigation

My process and method of investigation combined systems thinking with participatory organisational development and learning ideas, and used systems concepts and SSM in a workshop setting. During the process of doing my research, I observed that this combined approach helped those within the organisation engaged with my inquiries to:

1. Collectively explore problems experienced as complex, interconnected, and involving multiple stakeholder perspectives. This exploration helped those involved to arrive at a 'new appreciation' of the issues at stake, some of which were previously perceived by the same stakeholders to be intransigent (such as changing management style and cultural behaviour, see section V.5)
2. Better articulate problems and to devise possible solutions from their own perspectives and also to be open-minded regarding the viewpoints of other stakeholders. The process of defining, debating and agreeing problems enabled those involved in the change management programme to arrive at solutions that were meaningful to them and based on mutual understanding and accommodation of perspectives (e.g. see Figures 19 and 20, section V.5).
3. Consider an approach to change that might previously have been met with scepticism. This in turn appeared to raise the level of receptiveness and enthusiasm for a change initiative which participants felt was in accord with their own cultural and value systems rather than an approach being imposed on them from outside the organisation (see section II.4.2).
4. Trust me to facilitate the change initiative. My facilitation style and prior knowledge of the organisation as a result of my consultancy work helped foster this trust which was openly expressed on a number of occasions by those engaged with my inquiries (see section VII.3.1).

My own observations on how participants found the overall research process and method of investigation were reinforced by comments made by participants at post-workshop feedback sessions when prompted to comment on their own experiences of engaging with my inquiries. For example:

Comments related to the overall process of engagement:

- "Simple and involved all, therefore decisions arrived at more comfortably" (Com1-5)[26]
- "We needed this to help shape our thoughts" (Com1-3)
- "Made us aware of the number of issues and that similar problems were faced across different regions" (Com1-11)
- "The need to confront the future and bury the past was critical" (Com2-3)
- "This initiative gives us the authority to go ahead and make decisions in future" (Com1-7)

Comments related to the workshops:

- "It seemed that some decisions had been decided prior to the workshops and the working party approach was just for show" (Com2-9)
- "The workshops were immensely rewarding. I think we buried a lot of misconceptions" (Com4-3)
- "Overall, the workshops were stimulating and enjoyable, and, not the destination, only the first step of the journey, looking forward to further refining and using the approach to continue the programme" (Com4-1, closing remarks by the lead project sponsor at the final wrap-up session)

Comments on the techniques and tools used at the workshops, including the development of the new approach and activity models (Workshops 3 & 4), included:

- "Very easy to visualise and understand" (Com3-1)
- "Allows presentation of ideas and concepts very simply and efficiently, and avoids long descriptions" (Com3-6)
- "Assists vision development - a picture paints a thousand words" (Com3-6)

[26] In order to distinguish comments received from the various workshop participants, a code was used to identify comments received at each of the workshops. For example, the code: Com1-2 refers to commenter 2 at Workshop 1

- "The approach establishes context and forces assessment/analysis of why events/activities are undertaken" (Com3-1)
- "The approach ensures that activities undertaken are priorities and allows us to take responsibility for our own destiny" (Com4-11)
- "Clear picture, assisted to understand what we should be doing and where we want to go" (Com4-6)

Many commented that it was important that as facilitator I had been neutral, unbiased, and with no vested interest, although one participant questioned whether I had been leading the direction. My role as mediator between lower-ranked officials and senior management was also referred to. Other views expressed were:

- "The facilitator was critical to the success of the workshops and outcomes being clearly defined" (Com1-1)
- "The facilitator's style, approach, and method of operation encouraged us all to participate and share our view" (Com1-8)
- "Your personality, attitude and commitment helped give everyone a chance to be involved and contribute" (Com1-3)

However, in contrast to many business consultancy projects I have completed over a ten-year period, I identified a dilemma in my research process and method of investigation regarding my decision to use a truly participative approach; in order to encourage learning meant that all decisions had to be made in a group setting, i.e., the workshops. This required that I introduce techniques to enable participants to think creatively about the future, as initially workshop participants tended to define the current situation or slight derivations of it rather than look to future possibilities. This tended to bog down the workshop process which led to the temptation on a number of occasions for me (as facilitator) to suggest 'solutions'. This I resisted.

VI.2.2. Workshop-based Inquiry Design

My workshop-based inquiry revealed the following findings:

- Whilst I introduced workshop rules and structured brainstorming techniques (see Chapter V) to encourage full participation, there was the problem early on in that some participants were hesitant to openly share their viewpoints. This, however, became less of a problem as the workshops progressed.
- My workshop-based process went beyond simply being a participative approach to an approach that encouraged active involvement, ownership, and devolved decision-making. This led to the transfer of responsibility for the change management programme outcomes and sustainability of approach, from me to the CMT (see section V.4.1).
- Whilst there was a need for me as facilitator to maintain harmony amongst participants, there was also a need to ensure that a lack of conflict or my attempts at preventing the abuse of power from some over others did not stifle debate or quell new ideas or new ways of thinking. For example, at the initial workshops where debate was sometimes dominated by a few of the more vocal or authoritative participants, this appeared to provide some direction for healthy debate and encouraged others to think 'outside of the box'. It also appeared to encourage others to express ideas that may otherwise have not been raised.
- I observed that critically challenging assumptions and norms at times appeared to be uncomfortable for some participants but this may have led to some of the rich debate that was had that otherwise might have been missed.
- I found it difficult at times not to abuse my power as facilitator by manipulating rather than guiding participants to reach agreement or arrive at outcomes; maintaining an impartial participant-observer stance was a constant challenge.

- My use of SSM as a communication system in combination with organisational development and learning ideas helped workshop participants learn about each other, their own organisation, and the process of inquiry itself.
- The workshop-based approach enabled KWA to consider what kind of institutional strengthening and what kind of capacity-building would work in the context of my research situation. This enabled participants to devise and implement solutions on their own terms, as opposed to solutions being prescribed by consultants, as was previously the case on similar change initiatives (see section I.3). My workshop-based approach had a role in this outcome, and had novel elements of design that went beyond an approach that encouraged participation and shared learning to one where the methodological approach itself drove the change process.

VI.2.3. Combining Approaches to Underpin my Inquiries

It appeared to me that by taking an approach that combined participatory organisational development and learning concepts with SSM, enhanced the learning experience for those engaged with my inquiries compared to change interventions previously experienced by KWA (outlined in section I.3) as less participative or not systemic in nature (e.g. Price Waterhouse, 1994; North West Water, 1997; Government of Kerala, 2002; De Seta, 2005). As a result, workshop participants were able to identify and clearly express problem situations from their own perspectives (e.g. see Figure 18, section V.5), which in turn resulted in participants recording a range of problems for later exploration and possible improvement (see Table 3, section V.5). A growing body of enthusiasm became increasingly evident over time, and appeared to lead to a desire to own and implement solutions from within the organisation (see Table 2 (section V.2) and Appendix 10). This became stronger as the workshops progressed and as workshop participants and the CMT became more familiar with the approaches adopted, evidenced by the rich debate that led to the development of activity models and the CMT taking on broader responsibility for

managing the process from the third workshop onwards (see section V3.1). A number of stakeholders commented on their experiences of combining approaches at the workshops, for example:

- "I felt we learnt a lot, the process was participative and open, and we've been given a chance to learn new skills and techniques and to contribute to the company's future" (Com3-14)
- "looking to solve the root causes of problems in the organisation as a whole rather than blindly tackling problems as they arise, has helped us to understand that problems we thought we had aren't quite what they seem. It's about time we stopped fire-fighting and looked to the bigger picture" (Com3-1)
- "Bringing people together from different walks of life and allowing them a real say in how we operate has been a breath of fresh air. The workshops have been instrumental in raising enthusiasm and energy levels, long may it continue" (Com4-1)
- "Participating in the whole process helped us become more knowledgeable of modern techniques to solving management problems. I now feel we can fix our own problems rather than rely on others to come in and fix them for us" (Com4-3)

VI.2.4. Building Enthusiasm through Wider Engagement

Whilst the change management programme and method of investigation were met with scepticism from a few, on the whole, there was an overwhelming desire to continue with the initiative. This desire was reflected in the more than 200 comments and suggestions recorded at the communications workshops (see Appendix 9). This highlighted to some extent the enthusiasm for change that was being generated by my research and the value of engaging with staff regardless of their hierarchical standing within the organisation, in a cultural setting dominated by a top-down hierarchical management approach. This perhaps

is an indication that engaging those involved with my inquiries on an experiential learning process led to acceptance of methodological approaches to change that may not have previously been conceivable. However, during the process of trying to engage the wider organisation through the communications workshops led by the CMT, it became evident that the CMT and participants of the earlier change management workshops that were already on the learning curve and thinking creatively, had difficulty facilitating this thinking in others. This had implications for design of a new approach (discussed in section VI.3.1 below) that could cultivate a sense of purpose and participation amongst employees making up the entire organisation.

VI.3. Outcomes

A number of outcomes resulted from the research which led to a range of change initiatives devised by workshop participants in the process of debating perceived problems explored at the workshops. These initiatives were organised through a task-force approach as an opportunity for continued collaboration amongst the various functional disciplines and regional offices, with interdisciplinary teams made up of specialists from various KWA departments, and reported on by the CMT (see Appendix 10). Periodic progress reports prepared by the CMT were shared with the wider organisation through presentations at quarterly regional management meetings (Change Management Team, 2007). Although I became aware of these outcomes because I attended the management meetings in my consultancy capacity, the reporting of these initiatives by the CMT was not included in my analysis of findings and writing-up phase as these activities by the CMT continued alongside, but separate to, my research inquiries.

As discussed towards the end of section II.4, following consideration of the findings of my organisational review in the pre-research (pilot) phase of this research, the senior management of KWA agreed that a 'new approach' was needed and I negotiated with them some of the general principles of the approach., for instance, that it should build on

existing skills, generate enthusiasm for change, and be systemic. Also, that it should be devised, owned and managed from within the organisation. Therefore, perhaps the most significant outcome of my research has been the development of a proposed new approach to organisational strengthening that has been developed iteratively, through my own reflections on what I observed or received by way of feedback from participants (including from workshops, interviews, and the questionnaire, see Appendices 2-5 & 9) and at times directly *with* the workshop participants (e.g. in developing the models in Figure 19 as part of the overall process). The approach can be said to have emerged because of the iterative nature of its development and because the early stages of the approach had been partially tested. It also incorporates an element of design for the future that was not tried and tested because it extended beyond the timeframe of this research. I have therefore also described it as 'proposed' to capture this untested dimension. In the abductive tradition it is my interpretation of the most likely way that institutional strengthening and capacity-building can take place in the KWA situation based on the evidence that became available to me through my research. The approach is certainly new to KWA but it also has some novel elements of design in relation to other approaches. My claims for its novelty are discussed in Chapter VII (see section VII.2.4). This proposed new participatory systems approach is described in the following section.

VI.3.1. A Proposed Progressive Participatory Systems Approach

The 4-stage approach to capacity-building and organisational development in the Kerala context is based on combining participatory approaches with systems thinking. This approach is distinctive from a theoretical point of view because it brings together and uses in the Kerala context key concepts from:

- Participatory systems approaches
- Systemic organisational development and learning
- Institutional strengthening and capacity-building in development situations

- Water management and governance

The first stage of the approach represents a review and planning phase (see section II.4.2) described as 'pre-research', but the organisational review for the KWSP formed part of my preparation and planning for this research and I drew on this work as if it were a pilot study. The second stage represents the process of generating enthusiasm and ownership for change through active involvement of stakeholders in the change process and in devising the approach to change. The third stage is concerned with operationalising the approach to change and in devising solutions to improve water management and governance, and the fourth stage is based on an iterative cycle of implementing change initiatives and exploring the effects of change on the organisational state, whilst at the same time continually refining the approach itself.

SSM and my use of it certainly influenced this approach. For instance, the approach emphasises the participatory nature of the process which was informed by elements of SSM used in the workshops (development of the rich picture and formulating activity models). In my inquiries, SSM was effectively used as a communication system to help participants visualise and define problems and to help engage participants with the change process. Combining the communicative and iterative nature of SSM with an emphasis on active participation, allowed those involved with the change management programme to question and debate processes related to organisational development and learning through repeated iteration. I discuss further some of the parallels between SSM and this new approach for KWA later in this section and in Chapter VII (sectionVII.2.2).

The new approach for KWA is based on the learning experience of workshop participants as the research effort progressed from conceptualisation through to its iterative development and initial trialling, and on a cycle of activities devised for the CMT to continue with the organisation's change management efforts once my research inquiry ended.

The 4-stage approach contains nine steps and is based on a cycle of:

1) Identifying the need felt for change (using participatory learning and appraisal methods, involving all relevant actors in data-gathering and verification of data through discussion, interview and triangulation to ensure that the researcher understands the world view of the various actors engaged in the system).
2) Agreeing sponsorship, active involvement, and ownership for the change process from key actors instigating the change (led from the top of the organisation).
3) Encouraging debate about perceived problems that can lead to change that is feasible and desirable (through the use of participatory systems approaches in workshops, and focus group discussions ensuring that all stakeholders have a say in debating the issues at stake, and in conceptualising solutions based on accommodating different world views). Scoping and devising interventions (appreciating local situated knowledge and value systems, thus ensuring that methods employed and likely outcomes are relevant and desirable in the local context).
4) Generating initial enthusiasm and buy-in for change from the organisation's senior management team and a cross-section of stakeholders. Taking a top-down approach for management focus, followed by bottom-up participation to encourage suggestions and ideas from the wider organisation through effective communication and involvement at all levels of the organisation.
5) Operationalising new approaches that can lead to improvements that are desirable and feasible (owned and managed by the CMT). Ownership from within the organisation is crucial, as this will diminish and eventually eliminate dependency on external support and thus lead to sustainability of the approach in the long term, by the organisation devising improvement programmes on its own.
6) Implementing desirable and feasible change as devised in step 5.

7) Evaluating and monitoring outcomes. Iteration takes place between steps 6 and 7 based on the experiential learning process.
8) Sustaining organisational development and change through an iterative process through advocacy from senior managers sponsoring the change programme with implementation led by the CMT. This step is crucial to maintaining the momentum and enthusiasm for the change programme, and is based on a 'bottom-up' participatory approach to building enthusiasm for change from the wider organisation.
9) Repeating steps 1 to 8 of the overall process (with iteration between stages) with necessary adaptations/improvements to the approach over time.

The approach is depicted below (Figure 21). It is presented in this way to illustrate the actual sequence of events as they unfolded during the period of research as well as the yet-to-be completed stages of the iterative cycle of action and learning from the point my research inquiry ended. In developing the approach, the aim was to provide the CMT with an approach that was partially-tested within the contextual setting of the research inquiry whilst also providing guidance for future direction. My involvement ended during the early stages of step 6, at the point where the CMT had begun implementing internal changes and were in the process of evaluating and monitoring outcomes. On my departure, KWA agreed to adopt the approach as a means for the organisation to continue on their journey of action and learning.

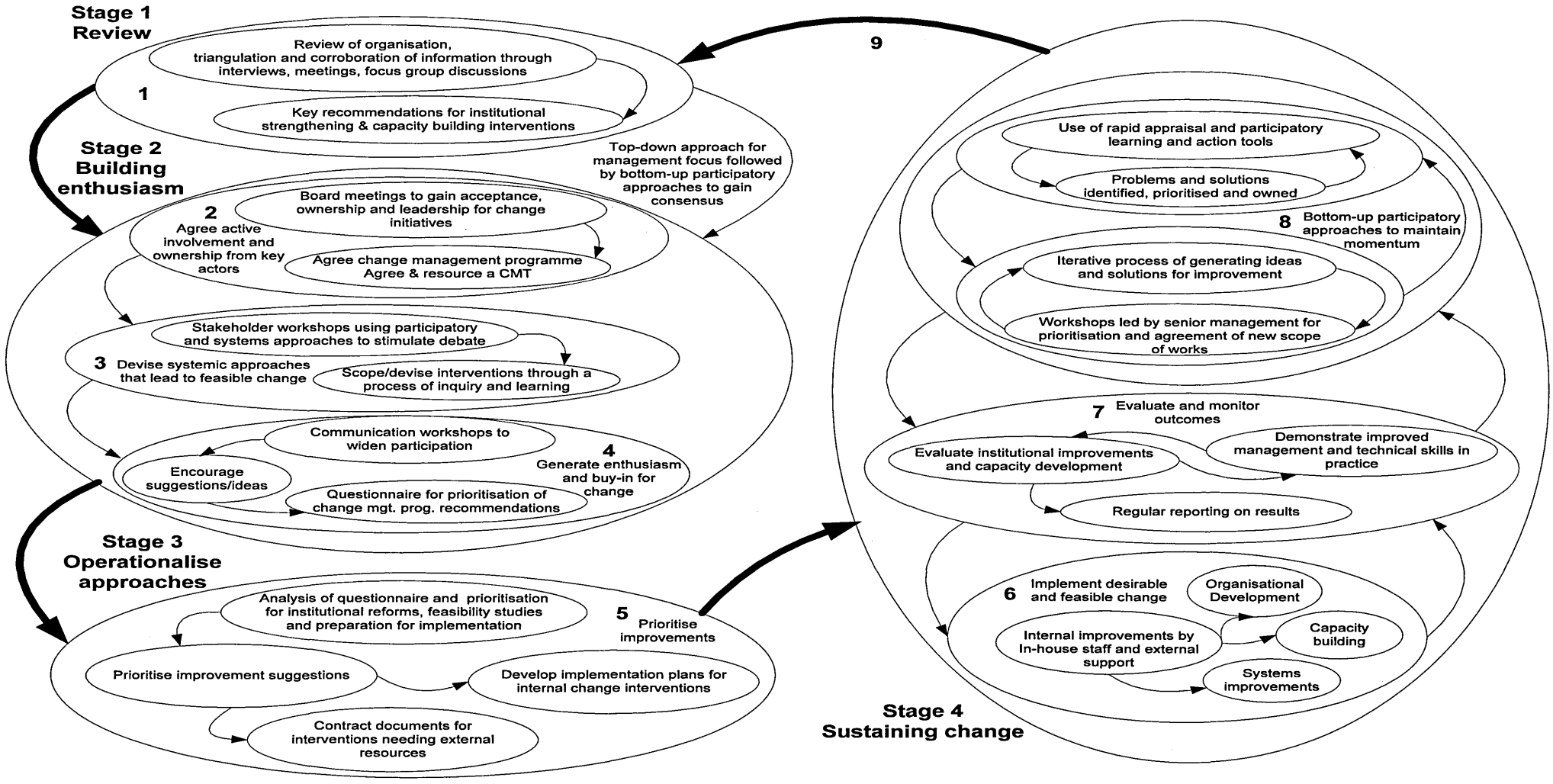

Figure 21 A Progressive Participatory Systems Approach

Source: this thesis

Figure 21 evolved from June 2005 to October 2006 through discussion and feedback from the stakeholders engaged with my inquiries, and draws on the theory and practice of methodological approaches mainstreamed by Checkland (1981) and others (Checkland & Scholes, 1999; Reisman & Oral, 2005). It also draws on the work of theorists, researchers and practitioners in the fields of OD and learning (e.g. Vickers, 1968; Atkinson, 1986; Chambers, 1994; Argiris, 2004; Gunderson *et al,* 2006; Senge, 2006; Smith, 2007; Cummings & Worley, 2009; Freedman, 2011) as discussed in Chapter III. The approach builds on Jacobs' (1996) 'Best Practice Model' and the 'STAIR Model' developed by Zeppou & Sotirakou (2003) in the following way:

- It elicits information from a cross-section of actors, using RRA[27]/PLA techniques (see Chapter III), including discussions and focus group meetings, in order to gain a number of varying perspectives on the issues faced in the organisation. Varying, and often conflicting perspectives enriched debate at the workshops when it came to accommodating viewpoints or reaching agreement on a number of issues.
- It builds on the idea of mutual understanding and support, where the organisation endorsed the need for, and took on a clear role as sponsor for the change management programme (see Chapters V). Without this support, the idea of using participatory systems approaches for the first time would not have been possible.
- It establishes visible ownership by the organisation, through the active involvement of the Senior Management Team and continued ownership for change initiatives led by the change management team (see Chapter V). The participatory systems approaches introduced to the organisation have taken a foothold and the change management programme (led by a small but enthusiastic group) has continued.
- It builds management systems (participatory systemic methods for KWA to improve the capacity to improve itself). Operationalising the approach presents the organisation with an opportunity for sustained improvements over time.

[27] RRA: Rapid Rural Appraisal is synonymous with PLA (Participatory Action and Learning).

Whilst building on the work of others, to the best of my knowledge, based on the work I have done, this approach is novel in the sense that the regionally-distinctive nature of the water and management issues that I am addressing emphasises more fully than the approaches that it draws on, the importance of engagement, active participation and learning experienced by participants, as opposed to extending the knowledge of the researcher or the methodology.

An important feature of the approach is its emphasis on participation as a means to building capacity, and the notion that active participation can lead to enthusiasm and ownership for change, thus enhancing the possibility for sustaining the approach (Ison, 2008). I discuss the overall significance of these features further in Chapter VII. Active participation and ownership were evident on a number of fronts:

1. The KWA senior management team and key actors became more familiar with the methods of engagement and techniques employed at the workshops, and a growing body of enthusiasm and ownership was evident in the feedback received from those involved and the number of change initiatives devised and implemented by the CMT (see Table 2, section V.2).
2. As the CMT grew in confidence and experience in using methods that were both participatory and systemic, they began to take the lead role in the change process and in devising change initiatives that could be implemented internally rather than with external assistance (see section V.3 and Appendix 4).
3. The fact the Communications Workshops were opened by the most senior of KWA officials and devised and led by the CMT, was evidence of a growing advocacy for the methods employed (see section V.6).
4. KWA's continued change management efforts led by the CMT using the approach developed through research was evidence that the organisation had embraced methods that were participatory, and that it valued a two-way flow of ideas and

communication as opposed to the traditional hierarchical management approach previously practiced

Whilst the approach contains 9 steps, it comprises 4 distinct stages, some containing multiple activities (shown by the 4 outer spheres with iterations within each stage in Figure 21 above).

The approach was the outcome of an iterative process of development that was influenced by SSM. I made an adaptation particularly relevant to the Kerala context, where the first stage of the approach (my consultancy work) had project management elements and was carried out in parallel to my research inquiries. It was in this stage that I was able to elicit problem-owners' perceptions of the real world prior to their involvement in my workshop-based inquiries. I also added other dimensions that went beyond participation, where by design, those who engaged with my inquiries gradually assumed the lead role for managing the change process as my role as facilitator diminished over time.

The significance of the 4 stages in my approach is elaborated on below:

Stage 1 - Review: is concerned with understanding the issues at stake, initially from an 'external' perspective. However, a great deal of importance and effort is placed on verification of findings. This is significant in order to gain the trust of the actors involved, and for ensuring that the perceived need for resolving the issues at stake are understood and owned, and used as a 'force for change'. This is achieved through active involvement and participation of those that will be affected by changes to the organisational set-up, or by changes to the sub-systems that make up the wider organisational system (Kast & Rosenzweig, 1974). This is signified by the solid arrow leading from the first sphere which depicts the importance of gaining acceptance, firstly from those at the top of the organisation, followed by wider acceptance and consensus from the rest of the organisation. As with the research inquiry, this can be achieved through Communications Workshops that encourage debate, but most importantly allows for a two-way flow of

information. This approach will only succeed if the ideas, suggestions and views expressed by the various actors and groups concerned feel that their perspectives have been heard and understood.

Stage 2 – Building enthusiasm: can only commence on successful achievement of Stage 1. Without agreement from the wider organisation that changes to the organisational system are firstly, desirable and secondly, feasible, any attempt to operationalise the methodological approaches suggested will fail. Stage 2 is significant in that it encompasses the notion that once active involvement and ownership is agreed, systemic approaches can lead to feasible and desirable change, provided such change is endorsed by those who will be affected by it. Without this 'buy-in', the adoption of new approaches will not be accepted nor will the potential benefits achievable through a cycle of inquiry and learning be realised. Stage 2 involves the use of systemic tools and techniques that emphasise the inherent 'situated knowledge' and value systems based on different perspectives and understanding of the issues at stake. It is this local context, or 'specificity' that must not be underestimated if the activities of Stage 2 are to progress to an approach that can be operationalised to ensure sustainability. Stage 2 therefore emphasises the need to gain wider acceptance for the new approach and encourages wider debate on how problems are perceived. It is the differing perspectives and understanding of how problems are perceived, that will lead to a new appreciation of how problems can be tackled.

Stage 3 – Operationalise approaches: builds on the enthusiasm for change generated by the systemic approach that has encouraged active participation, involvement and ownership for new ways of working thus far. Stage 3 is significant because it emphasises the need to operationalise the new approach. Without the approach becoming the norm, or 'business as usual', it will not be operationalised, nor will it be sustainable in the long run. Sustaining the approach requires that the methods employed are owned and managed by the organisation itself. In the case of my research inquiries, this was achieved through the

establishment of the CMT, empowered and authorised by those at the top of the organisation to continue with the change management programme.

Stage 4 – Sustaining change: builds on the previous three stages and is concerned with achieving organisational development through a process of inquiry and learning. The most important aspects here are two-fold. Firstly, the process of implementing desirable and feasible change, followed by evaluation and monitoring of outcomes, leads to an iterative process of improvements. Secondly, participation from those that make up the organisation at all levels, encouraged by the senior-most responsible leaders of the organisation, is crucial to maintaining the momentum for change. Without these aspects, the process will be considered a one-off exercise, and systemic approaches as a means to achieving sustainable improvements will lose credibility. Stage 4 is significant in that it emphasises the 'bottom-up' approach, whereas the first stage of the methodology necessarily emphasises the need for a 'top-down' approach to ensure acceptance of systemic concepts in the first place.

A repeated cycle of the four stages as depicted by the four solid arrows encourages iteration which in turn encourages a process that keeps checking institutional, socio-technical and environmental factors so that it becomes adaptive over time.

VI.4. Concluding Remarks

This chapter outlines some of the key findings and outcomes of this research, including a proposed new approach to capacity-building and organisation development that is based on combining participatory approaches with systems thinking tailored to a developing country context with regionally-distinctive cultural and value systems. This new approach for KWA that I refer to as a progressive participatory systems approach was influenced by the work and insights of others (Jacobs, 1996; Checkland & Scholes, 1999; Seppa¨la¨, 2002; Zeppou & Sotirakou, 2003; SLIM, 2004a; Reisman & Oral, 2005; Nidumolu *et al*, 2006; Colvin *et al*, 2008) but emphasises participation and ownership, linked to

organisation development and learning concepts, whilst drawing on the inquiring nature of SSM. This approach appears to be appropriate to the context in which I have done my research and is based on the learning experience of workshop participants as the research effort progressed.

The following concluding chapter synthesises all of the preceding analysis and presents my interpretation of the research findings in relation to my research questions. This final chapter also provides my critical reflections on the research process and outcomes and recommendations, and identifies areas for further research.

CHAPTER VII - ANALYSIS AND DISCUSSION

VII.1. Introduction

This research set out to explore how water institutions can be strengthened and the role of participatory systemic approaches in organisational development and change initiatives. It has focused on:

- Management and governance issues related to drinking water supply in Kerala
- Organisational and managerial aspects of drinking water supply institutions, using KWA and the Kerala Water Supply Project as the basis for conducting empirical study in a real-life project setting
- Exploring water and management issues within KWA and using the experience gained from research to help the organisation become more successful in achieving sustainable change in organisational performance and behaviour
- Potential capacity-building processes in the context of KWA including the development of a proposed new approach for strengthening the organisation

It has sought to answer a number of questions. These questions relate to what kinds of institutional strengthening, capacity-building and systemic approaches would work in the context of my research situation.

My research is distinctive from a theoretical point of view because it brings together and uses in the Kerala context key concepts from:

1. Institutional strengthening and capacity-building in development situations
2. Water management and governance
3. Participatory systems approaches
4. Systemic organisational development and learning

Together they underpin this research and direct attention towards systemic understandings of the managerial aspects of water institutions, and how systemic approaches might be used to bring about lasting improvements. By exploring these concepts through literature review - mainly academic literature and previous research done in these areas (Chapter III) and to a lesser extent through policy document review (Chapter II), I developed a methodology which guided my research and method of investigation (described in Chapter IV). My exploration of these concepts addresses the problem situation expressed at the outset of this thesis and discusses what my research findings have highlighted in theoretical, methodological and practical terms.

The aim of this final chapter is to synthesise all of the preceding analysis, present and interpret the overall research findings, and discuss their significance in relation to the research questions and the theories and practices outlined in chapters II and III. Reflections on the research methodology and my role as researcher and facilitator are included, highlighting points that appear to have potential for future application in other research contexts. Conclusions and recommendations for further work are also given.

The chapter is divided into the following five sections:

VII.2 Responses to the research questions

- 2.1 Overall characteristics of the initiative
- 2.2 Augmenting management capacity to build organisational and institutional capacity
- 2.3 Enthusiasm and ownership of processes
- 2.4 Development and use of systemic approaches for capacity-building and institutional-strengthening
- 2.5 The role of systemic methods in improving organisational effectiveness

VII.3 Reflections on the research methodology

- 3.1 The role of the researcher and facilitator

3.2 Action-oriented research intervention

3.3 The combination of techniques used

VII.4 Critical reflections on the process of developing the new approach for KWA

VII.5 Strengths and limitations of the research

5.1 Strengths

5.2 Limitations

VII.6 Conclusions and recommendations for future research

VII.2. Responses to the Research Questions

The following overarching research question was developed to direct the research in order to understand how Kerala Water Authority could improve water management and governance from a systemic perspective:

> *In the Kerala context, what are the characteristics of a capacity-building initiative that might help strengthen institutions in the water sector?*

This central research question was underpinned by the following questions:

- Within Kerala Water Authority, how might a capacity-building approach be developed and used to build knowledge, abilities and skills, and in doing so, facilitate a positive change in attitude and behaviour at both organisational and individual levels? What role, if any, might such an approach have in generating enthusiasm for change and ownership of change processes?
- Can the introduction of a systemic approach in the Kerala context lead to improvements in organisational and institutional effectiveness where previous systematic (mechanistic) interventions failed to deliver lasting results?

The following discussion interprets and generalises the research findings in relation to these questions in order to extend the theory and knowledge of institutional strengthening and capacity-building in a development context based on the Kerala experience. My

analysis is presented from the perspective of combining approaches that are participatory and systemic in a real-life project setting.

VII.2.1. Overall Characteristics of the Research Initiative

This research presented an opportunity for my inquiries concerning the possibility to build capacity at an individual and institutional level in an organisation responsible for the water sector for the entire State of Kerala. The challenge for the organisation and for me as a researcher was in devising an approach for capacity development that was both practicable and sustainable in the long term, against a backdrop of similar interventions considered to be less than successful in the past.

An understanding of KWA's pre-research experiences of change interventions was obtained (as part of my consultancy work, detailed in section II.4) which I compared with views and experiences expressed by those who engaged with my inquiries. This approach was used as a means of assessing whether any changes in perception had occurred (see sections VI.2 and VII.2.4).

In response to my overarching research question asking what characteristics of a capacity-building initiative might help strengthen institutions in the water sector, my research findings indicate that such an initiative should be able to:

- Build management capacity to build other aspects of organisational and institutional capacity
- Generate enthusiasm for and ownership of the processes for organisational change
- Develop and use a systemic approach to capacity-building and institutional-strengthening
- Use systemic methods to improve organisational effectiveness

Each of these characteristics will be discussed in turn in the following four sections.

VII.2.2. Augmenting Management Capacity to Build Capacity

Considering the issues facing KWA described in previous chapters, it became evident as the research progressed that in order to build capacity at an organisational level, KWA would need to improve the capacity to improve itself as suggested by Ralston *et al* (1993), Stacey (2001), Asian Development Bank (2003), United Nations Development Programme (2003a), Greif (2006), Ison (2008), and Francis *et al* (2012), discussed in sections III.2.1 and III.2.2.

My findings in relation to the need to build on the inherent skills within KWA are similar to those of other researchers in India and other developing country contexts that require understanding of cultural norms and methods of investigation and engagement that are locale-specific (e.g. Taylor, 1996; Jacobs, 1996; Abrams, 1997; Ongaro, 2004; Joshi & Huirem, 2009; Batts, 2012). Although the Indian context differs from other regional contexts there are some similarities in relation to building capacity in a development context which I draw on and compare, as outlined in section III.2.1. For example, Nidumolu *et al* (2006) cite the lack of user involvement and the lack of appreciation (on the part of government) of the socio-economic needs of users, as the main reason for the lack of implementation of water management plans in India. Similarly, Seppa¨la¨ (2002) emphasises the need for effective stakeholder participation for water and sanitation policy reform implementation in Kenya, Sri Lanka and South Africa, suggesting that reforms often fail because of failure on the part of donor agencies to build on the inherent capacity of sector professionals, civil society and communities. Kayaga (2008), considering the Uganda water sector, also emphasises the need for strong participation and a positive change in stakeholder attitudes and organisational values, in order to sustain improvements.

VII.2.3. Enthusiasm and Ownership of Processes

As Kayaga's (2008) focus on changing attitudes and values suggests, capacity-building is about much more than building on inherent skills (see also Chapter 3 section III.3.3). The use of participatory systemic approaches in KWA through the research process outlined in this thesis demonstrated that generating enthusiasm and ownership of the change process also has an important part to play. There were two aspects to this characteristic:

1. There was a noticeable increase in receptiveness and enthusiasm for organisational change in those engaged with my research, both at an individual level as reflected upon by workshop participants (see sections VI.2 and VII.6) and at a wider organisational level (those participating at the Communications Workshops (see section V.6 and Appendix 9)). This apparent change in attitude and behaviour appears to be consistent with the notion that an approach to change that is tailored to the inherent cultural and value systems prevalent within the environment in which the organisation operates, is more likely to be accepted compared to an approach that is imposed or 'imported' from outside (Narayan, 1993; Ralston *et al*, 1993; Department for International Development, 1997; Mentz, 1997; Gregory, 2000; Stacey, 2001; European Commission 2003; Singh, 2003).

   The insights I have gained from my research in relation to how an approach that emphasises the generation of enthusiasm and ownership can build capacity and strengthen institutions, extends understandings of capacity-building and institutional-strengthening as explored in Chapter III.2. For example, my findings are in keeping with Ison's work on triggering enthusiasm (which he describes as "an emotion - a way to orchestrate purposeful action" (Ison, 2008, p152)), in the sense that the enthusiasm for change generated amongst a relatively small group of stakeholders in the initial workshops became the driving force for change amongst the wider organisation (outlined in section VI.2.4). One participant, for example, remarked at the initial workshop that "transparency, openness and inclusiveness

were the defining characteristics of the process and this enthused participation and also helped build stake-holding" (Com1-1). Whilst the design of processes in my study which led to this enthusiasm, had some similarities to that of Ison & Russell (2000), i.e., it allowed KWA to devise and pursue its own activities, it differed in the sense that the approach was devised by a group of stakeholders motivated by different, rather than similar, enthusiasms for action. These enthusiasms for action in KWA's case were triggered by different emotions and motivations for change in relation to responsibilities, loyalties and affiliations, of the various stakeholders involved, depending on their role and level of seniority within the same organisation.

I recognise, however, that in the context of carrying out my inquiries, the concept of change in behaviour and attitude at an organisational level is much wider than can be revealed by this research.

2. Ownership of process was experienced on two levels. Firstly, my workshop-based process encouraged ownership and devolved decision-making, which led to the transfer of responsibility for the change management programme outcomes and approach, from me to the CMT (see section V.4.1). Secondly, ownership was also apparent from the level of advocacy for change openly expressed by the project sponsors at the wider-Communications Workshops (see section V.6) and the fact that a number of change interventions were devised, owned and implemented by the CMT in parallel to the research effort (see Table 2 (section V.2) and Appendix 10). My findings in relation to ownership are in keeping with literature (Polidano, 2001; United Nations Environment Programme, 2002a; Singh, 2003; Purnomo *et al*, 2004; Government of India, 2008a), although ownership in the studies I have cited ostensibly relate to beneficiaries taking over responsibility for operation and maintenance of infrastructure projects - as opposed to ownership of methodological approaches to sustaining organisational development. Another distinguishing factor

relates to the progressive handing over of responsibility to a CMT for devising and implementing their own change interventions to enable KWA to pursue their own activities - as opposed to having someone else's designs of interventions imposed on them. In this sense, my study has contributed to experiences and understandings of ownership of change processes within development contexts as explored in Chapter III.

VII.2.4. Development and Use of Systemic Approaches for Capacity-Building and Institutional-Strengthening

Taking account of not just the organisation but its institutional context and the relationship between the two, is characteristic of a systemic approach.

Based on Grief's analysis - that institutions can be treated as organisations that persist over time (Greif, 2006), throughout this thesis, I have taken the term 'institution' (as defined in section III.2.1) to overlap with the term 'organisation' and sometimes to be synonymous with it.

Institutions as rules of the game (as suggested by North, 1993) can extend to the contexts of organisations, and therefore, in order to build capacity at an organisational level, my exploration of KWA also considered the wider institutional environment in which the organisation operates (as discussed in sections II.2 and II.3).

My research shows that building capacity within KWA required an approach that was tailored to its specific needs, inherent skills, and values systems - in other words an approach that enabled KWA to adjust to and influence the environment in which the organisation operates.

My findings in relation to building capacity and strengthening institutions in development contexts as explored in section III.2.1 compare with those of North, 1993; Abrams, 1997; Mentz, 1997; Seppa¨la¨, 2002; and Colvin *et al*, 2008. For example, my findings (outlined in section VI.2) indicate that interventions based on knowledge and experiences from

'western' contexts must take into account the needs and capabilities of those undergoing development. Interventions that do not encourage active involvement, or allow sufficient adaptation to ensure that they are locale-specific, are not likely to be accepted or deliver the desired results. The emphasis to engaging KWA stakeholders with my inquiries was, therefore, on the learning experienced from exploring the inter-relationships of issues and problems rather than in seeking solutions (in line with Checkland, 1981; Taylor, 1996; Jacobs, 1996; Abrams, 1997; Ongaro, 2004). Emphasis was also on KWA building its own capacity to improve itself. This aspect of the approach was influenced by my own previous experiences and from findings of other researches in similar development contexts (e.g. Ralston *et al*, 1993; Stacey 2001; Asian Development Bank, 2003; United Nations Development Programme, 2003a; Greif, 2006).

Through engaging with my inquiries, KWA has begun to understand that effective water management and governance goes beyond the need to simply match increasing demands for water, to an approach that balances the needs of society, ecosystems and the environment (as advocated by Alam, 2003; Shiva, 2005b; Postel, 2008; Government of India, 2009, Government of Kerala, 2012). Engaging with systems traditions has helped KWA understand these needs. Whilst it was not the intention of this research to determine the extent that an increased focus on balancing these needs might reduce the supply-demand deficit, or improve water management and governance performance, my research has raised awareness amongst stakeholders. An awareness that the problem of ever-increasing demands for water (described in my problem statement), and the supply-demand dilemma depicted in Figure 5 (section II.2.2) cannot be tackled effectively without considering the interconnectedness of these needs. In this regard my research extends understandings and experiences of water management and governance in the Keralan context as explored in section III.2.2.

I have developed a four-stage approach with KWA that has both similarities and differences when compared to other approaches for systemic inquiry, for example Jacobs' (1996) five-stage best practice model, Checkland's (1981) four-activities model, Zeppou & Sotirakou's (2003) five-stage STAIR model, and Ison & Russell's (2000) four-stage model for doing systemic action research. The need for facilitation features in the suggested approach and was a characteristic of the capacity-building initiative and not just part of the research process. I have been guided largely by SSM but not just one version of it and my work has been informed by other designs of processes (Vickers, 1968; Atkinson, 1986; Chambers, 1994; Checkland, 1999; Stacey, 2001; Patton, 2002a; Singh, 2003; Senge, 2006) as discussed in chapters III and IV.

It is also designed to take account of particular starting and finishing conditions associated with building on and extending beyond consultancies (in this case, mine). This characteristic is also a common characteristic of organisational change programmes in developing countries where consultants are brought in to identify problems and make recommendations for improvements, leaving others within the organisations to carry them out.

My approach is novel within the Keralan water sector in the sense that it is tailored to a water provider at agency level (rather than focussing on consumers) in a developing country context in a large governmental bureaucracy where political forces are at play amongst competing agencies. These agencies are characterised by having ill-defined boundaries and responsibilities for water management and governance as discussed in sections II.2, II.3, and III.2.2. In contrast to my inquiry which has aimed to find out how water institutions can be strengthened, and the role that management capacity plays in institutional strengthening, other studies (in the water sector) of a participative nature in India have focused on the community or user-group level. These studies have predominantly been in rural communities where small-scale projects are used as pilots to

either replicate or scale-up participative approaches as explored in section III.3.1 (Lockwood, 2004; Shiva *et al*, 2004; Joshi & Huirem, 2009; International Institute for Environment & Development, 2011). My approach was also tailored to KWA from the perspective of its long history of tackling water-demand problems perceived as requiring engineering solutions, rather than management approaches to resolve them, requiring those engaged with my inquiries to set aside their time-honoured traditions in favour of a more collective, more participative and holistic approach to strengthening the organisation. Taking this approach was a new learning experience for KWA and illustrates its receptiveness to trialling new ideas and approaches for building capacity as evidenced by the views expressed by a number of participants (see section VI.2) who reflected on their experiences of engaging with my inquiries. Other stakeholder comments related to the overall process of engagement included the following:

Creation of a positive attitude:

- "There was a noticeable change in the attitude of a number of our more sceptical colleagues once they got actively involved in the exercise" (Com1-4)
- "The dialogue at the workshops and at wrap-up meetings was greatly instrumental in helping us solve difficulties and clarify doubts" (Com4-2)

Consensus building:

- "Involvement and participation of everyone in planning, discussions and decision-making helped us to understand other people's points of view and that we are all striving for the same things" (Com1-9)
- "Trying to reach consensus helped us resolve a number of misconceptions and conflicts" (Com1-9)

- "Including people from other regions and ranks improved relationships between disciplines and management and resulted in greater understanding between competing interests" (Com3-11)

Knowledge and skills enhancement:

- "Promoting transparency and blending our knowledge together with modern know-how resulted in successful and desirable outcomes as well as in proper planning" (Com1-6)
- "Being able to articulate in simple terms exactly what constitutes a problem and being able to put together conceptual models to stimulate debate about change, was a new experience and enlightening" (Com3-3)

Participation and inclusion:

- "I felt we were able to express our views freely and careful consideration was given to them" (Com2-8)
- "The most important contribution of the workshops was bringing people together and developing a sense of unity. This helped us share the load" (Com4-2)
- "The intensive discussions helped to uncover existing arrangements and relationships which enabled the formulation of strategies for implementation" (Com3-7)
- "Our knowledge was considered so we felt included and were happy to share our views, opinions and suggestions" (Com1-10)
- "People were in the driver's seat" (Com1-10)
- "Individual experiences have an important role to play; then one feels it is one's own process" (Com2-1)

- "Participating in the process and people being able to get adequate information about what is being done in other parts of the company played a great role in building confidence and ownership of the effort" (Com4-10)
- "I felt respected and at the centre of activities" (Com1-16)
- "We were not treated as beneficiaries but rather as actors, as drivers of the process" (Com3-5)

My approach is also distinctive because of its scale, both in terms of the research inquiry itself in engaging workshop participants over an 18-month period, and also in terms of the scale of the organisation, being responsible for water supply throughout an entire State in India. In contrast to other studies of a participatory nature in the water sector in India, in particular those claiming to be systemic (cited in this thesis), to the best of my knowledge based on the work I have done, the breadth of my study in terms of timescale, cycles of feedback and iteration, and the degree to which I have carried through the participatory principles, is distinctive.

As part of the process which led to the iterative development of the new approach, workshop participants were able to clarify and develop their own thoughts regarding the various situations under analysis through the development of activity models (see Chapter V). Questioning and defining problems and seeking answers from a particular world view provided input to the models which were used by participants for defining purposeful activity based on knowledge gathered throughout the analysis process (Checkland & Scholes, 1999; Open University, 2011). Activity models are pictorial representations of human activity systems and as such incorporate the specific characteristics of systems, i.e., systems' boundary, external environment, connectivity within the system, as well as communication and control. Mindful that workshop participants were unfamiliar with conceptual modelling, I introduced the "Organisational Model" (Figure 15) which I devised at the beginning of the research effort to help workshop participants embrace

systems concepts. My idea to introduce KWA to systems concepts for change initiatives was novel to KWA, as opposed to previous systematic (mechanistic) interventions that appeared to lack active involvement and ownership from those within the organisation undergoing development (see section II.4) and in this regard I have made a contribution to extending understandings of using systems concepts within the contextual setting of my research.

In response to the research question on how a capacity-building approach might be developed and used in order to facilitate a positive change in attitude and behaviour, my research findings indicate that the process that participants underwent in developing activity models (see section V.5) as part of the iterative process of developing the new approach, has contributed to change in attitude and behaviour. For example, the process of firstly representing the problem situation (Figure 18) and secondly devising possible solutions (the purposeful activity models; Figures 19 and 20) encouraged those engaged with my inquires to accommodate perspectives and collaborate in devising, owning and implementing change interventions that they felt were achievable in-house without the need for external assistance (Table 2, section V.2). This apparent desire to own and lead change initiatives from within the organisation was a positive change in attitude and behaviour from that which I had previously perceived during my pre-research interviews. To a certain extent it was the process of engagement (my workshop-based design) that contributed to this change in attitude and behaviour as expressed by a number of participants throughout the period of research (see section VI.2.1 for participant views regarding the overall process of engagement). In this regard I have made a contribution to enhancing water management and governance processes in Kerala.

The insights I have gained from my research in relation to how an approach that emphasises participation and learning can build capacity and strengthen institutions, extend understandings and experiences of participatory approaches as explored in section

III.3. For example, my findings in relation to participation are in keeping with those of Joshi & Huirem (2009) who undertook a similar water-related capacity-building intervention in a different contextual setting to mine. They found that the key to success of their intervention in rural India, was "the degree of participation and involvement of the target group (the primary stakeholders) in all stages of the endeavour (from acceptance of the project, through planning, implementation, monitoring, evaluation and its on-going maintenance) and the extent of ownership and stake holding they have in the expected outcomes and their sustenance" (*ibid.,* p10). Paramasivan (2000) and Chackacherry (2003) reported similar findings in their water related studies in Kerala. However, Chackacherry cautioned that "once support is withdrawn, 'systems' often fall into disrepair due to unsustainable practices" *(ibid.,* p10). My initial findings suggest that this may not be the case in KWA. The process of progressively transferring ownership for the change intervention led to the CMT devising and implementing a number of change initiatives immediately after my research had ended (see Appendix 10). This indicated a positive desire on the part of KWA to continue to use and further develop the new approach. I acknowledge, however, that as well as desire, the ability for KWA to further develop the approach depends on its ability as an organisation to bridge the gap between its inherent and desired capacity (Abrams, 1997), and to build capacity at both an individual and institutional level ("personal and non-personal (corporate or administrative) capacity", as suggested by Mentz (1997, p9).

VII.2.5. The Role of Systemic Methods in Improving Organisational Effectiveness

My initial findings indicate (see section VI.2) that the use of participatory systemic approaches in KWA (discussed in section V.5) as a characteristic of a capacity-building initiative can contribute to some aspects of improving organisational effectiveness (see Appendix 10). However, as I was not able to return to the organisation, further evaluative research would be required to corroborate these findings.

My project-based approach inspired KWA to seek practical improvements by combining the use of Organisational Development (OD) and learning methods with Soft Systems Methodology (SSM). In this sense, I have made a contribution in on-going discourse regarding uses of SSM in my adaptation of SSM as a communication system in combination with other approaches within a real-life project setting (see section VI.3). Whilst my inquiry is based on a specific case, my adaptation of methodology was a source of insight into systems ideas and OD and learning concepts for those engaged with my inquiries, and in this sense my research extends the use of methodology from a new perspective. Those engaged with my inquiries were beginning to use the approach that evolved from the research as a means of exploring complex multi-stakeholder perspectives in an environment where change initiatives tend to be top-down - inhibiting two-way communication flows and devolved decision-making. In relation to the research question on whether the introduction of systemic methods in the Kerala context can lead to improvements in organisational effectiveness where previous systematic (mechanistic) interventions have failed, the initiatives devised by those engaged with my inquiries suggest that improvements are possible (see Table 2, section V.2). However, this would require follow-up evaluative studies on what effect, if any, these initiatives might have on organisational performance, once implemented.

My research has helped KWA to begin to see the organisation as a dynamic process and to move beyond a focus on its parts (as suggested by Beckhard, 1969; Ackoff, 1974; Argyris & Schön, 1978). It has helped KWA bring clarity to wider organisational problems and complexities (as suggested by Kast & Rosenzwig, 1974; Ramo & St. Clair, 1998; Stacey, 2001; Zeppou & Sotirakou, 2003) and to facilitate learning (Senge, 1990, 2006; Finger & Brand, 1999; Soola, 2000; Anaeto, 2010) as commented on by workshop participants (see section VI.2.3). This finding extends understandings and experiences of systemic organisational development and learning concepts in the Kerala context as explored in

III.3.2. I acknowledge, however, that the potential for learning was limited to the group involved with my inquiries, although to some extent, learning was extended through wider-engagement of stakeholders at the communications workshops (outlined in section V.6).

My research has shown (within the Keralan context) that participation that encourages multi-stakeholder perspectives can generate valuable discourse and help encourage a sense of belonging and ownership of problems (as suggested by Gregory, 2000; Stacey, 2001; European Commission, 2003; Bosch *et al,* 2007; Open University, 2006; Collins *et al,* 2007). It has also shown that Systems thinking (as suggested by Checkland, 1981; Khisty, 1995; Checkland & Scholes, 1999; Chapman, 2002; Reisman & Oral, 2005; Ison, 2008; Kayaga, 2008; Open University 2011) has helped KWA achieve a clearer understanding of the problems it faces and in bringing clarity to complex organisational and managerial issues (see section V.4). In so doing, my research extends understandings and experiences of participatory systems approaches as explored in section III.3.1.

VII.3. Reflections on the Research Methodology

My involvement with KWA as a consultant revealed concerns amongst some within the organisation that a number of change interventions almost imposed on the company from development agencies (in return for project financing) was having a negative impact on morale, productivity and ultimately services. These were the undesirable outcomes of previous interventions intended to make KWA more customer-oriented, commercial or efficient. But despite these concerns, the lead project sponsor (a KWA Board member) was keen to engage a number of people in the organisation with my inquiries. This required those involved with my inquiries to undergo a fundamental shift in thinking and behaviour as the process of engagement was to some extent experimental, and it was emphasised at the outset of the research that there were no preconceived solutions. It was

experimental in the sense that it was the first time that a truly participative approach to organisational and behavioural change had been undertaken at KWA.

While senior level decision-takers and policy-makers were the primary respondents of my inquiries, stakeholders at other levels of the organisation were also engaged as a way of triangulating issues, and also to broaden acceptability and corroboration of the outcomes of the research. I acknowledge that the overall number of stakeholders with whom I was able to engage was small (compared to the 12,000 employees within the organisation). However, my research has facilitated a positive change in attitude and behaviour amongst an enthusiastic group of individuals. These individuals (possibly potential change agents) are now advocating change as an inevitable and essential means to strengthening the organisation as indicated by the change initiatives described in Appendix 10. Whilst this is a small step, it is seen by the KWA senior management team as an important step towards encouraging the entire organisation to embrace the need for future change intervention (refer to stakeholder comments in section VI.2.1).

In hindsight, engaging with a larger number of stakeholders and perhaps a different composition may have revealed different findings and outcomes. Because I had to negotiate my way through the process with managers I did not iteratively question the make-up of the group or check that it was truly representative of the organisation. This may have skewed the outcomes of the research in favour of one group of stakeholders over others. Reflecting on the group, there were perhaps a disproportionate number of senior officials compared to lower-ranked staff and this may have had the effect of pushing for outcomes considered as acceptable to higher management as opposed to those with less decision making authority as cautioned by Jackson (1991b).

VII.3.1. The Role of the Facilitator

Reflecting on the workshops, I tried at all times to be impartial by allowing the participatory process to unfold. However, while acknowledging the subjectivity of my

own interpretation of events as they occurred, I did not consciously seek to influence outcomes (as cautioned by Davies & Ledington, 1991; Jackson, 1985). I also acknowledge that in the interest of maintaining harmony, whilst all participants had the opportunity to contribute, as facilitator, I struggled early on to control the overly-dominant nature of a few participants. I observed, however, that this became less of an issue during subsequent workshops as participants began to appreciate the viewpoints of fellow stakeholders as they described the problem situation from their own perspectives. I took caution from literature on consensus (as advised by Connelly & Richardson, 2004; Williams, 2009), as the process of building consensus, can in some instances, lead to forced-consensus by some stakeholders over others.

My facilitation style was soft rather than harsh, taking the role of catalyst and mediator; leading discussion by posing questions, but allowing participants to debate and decide answers. My perception of this style was reinforced by comments made by participants at the workshops and in post-workshop feedback sessions, such as:

- "The workshop rules really helped us to speak freely in front of our bosses, we felt protected by the facilitator and weren't afraid to voice our opinions" (Com1-9)
- "It was important to have a neutral party to avoid influence from senior-ranked officials" (Com1-9)
- "Unbiased recorder of feedback allowed a non-personal development of discussions" (Com2-5)
- "Independent views were expressed and the fact that no preconceived views were held helped us arrive at our own decisions" (Com2-3)
- "Clearly without the facilitator the amount of participation and data obtained would not have resulted as it did" (Com3-1)

- "The role of facilitator as mediator between the regional management and management at the centre, was crucial to allowing us to express our opinions" (Com3-14)

These responses provide an indication that the workshop participants appreciated my contribution as facilitator, and many made other comments to substantiate this view (see section VI.2.1). This highlights the importance of matching the facilitator's style with an organisation's culture, as a factor in organisational change interventions. This perhaps distinguishes my research inquiry from previous change interventions experienced by KWA which in contrast were less inclusive and less participatory. My relationship with KWA's senior management team was built on trust, and coupled with my facilitation style may have contributed to the greater enthusiasm for change expressed by those engaged with my inquiries, over other inquiries (see section V.2). A lack of trust or inappropriate facilitation style can mean failure for change interventions, or at least a lack of cooperation by stakeholders with interventionists, as cautioned by Larsen (2012). I recognise, however, that the matching of my facilitation style with the organisation's culture may have resulted in reinforcement or extension of existing norms, behaviours and values within KWA.

Reflecting on my style, in the light of the feedback received from participants, I could have taken a harsh, more confrontational stance and allowed conflict and dissonance amongst participants to emerge, rather than to guide, mediate and seek harmony as I did. Taking a less empathetic or rationalistic facilitation style may have revealed more about inconsistencies in behaviours and highlighted more fully the power struggles amongst stakeholders. This may have taken debate into other directions or resulted in different outcomes. For example, if I had guided less and allowed participants to do more of the structured thinking this may have led to different outcomes or designs of processes for organisational change interventions.

The process of engagement relied on the need for facilitation, which was a characteristic of the capacity-building initiative; hence facilitation being integral to my workshop-based design. My use of facilitation in KWA highlights the importance of facilitation being central to the capacity-building approach, and not just part of the research process, in this regard my research extends experiences and understandings of the role of facilitation in capacity-building and institutional strengthening initiatives in a development context.

I found the practicalities of negotiating the boundaries of research, facilitation and consultancy roles to be challenging, but not an impossible prospect. Having worked as a consultant for more than ten years, conducting this research required a shift in my own thinking. From an impartiality perspective required of a researcher (as distinct from the directing perspective of a consultant), I understand that my involvement with KWA (as a consultant) might have influenced the outcomes of the research because of my personal bias for success as a consultant. However, I felt that the benefits of having already gained a thorough knowledge of the organisation, its values, beliefs and capabilities as a consultant, complemented rather than hindered my research role. I also acknowledge that my role as facilitator and my need as a researcher to be an impartial observer might have meant that I received some kinds of feedback and missed others. In hindsight I acknowledge that separating the roles of facilitator and researcher might have yielded different results.

VII.3.2. Action-oriented Research Intervention

In terms of the practical aspects of engaging with stakeholders, influenced by Lewin (1948), my overall method of investigation had elements of systemic action research. However, I only claim to have used a part of the action research approach because of time constraints and the lack of opportunity to follow through and evaluate outcomes. My research approach allowed an in-depth analysis of real-life situations, issues, and problems faced by the organisation, and the use of different data gathering methods helped elicit rich

information from a cross-section of stakeholders and data sources. Primary data was gathered from discourse with staff in the three regional centres and headquarters of KWA, and the workshop participants. The information gathered and analysed from the Kerala experience can be a source of information for researchers and practitioners involved in similar change management interventions within and outside of the region where similar political and social forces are at play. In this sense, through a real-life project setting I have made a contribution to understandings of management and governance issues which can potentially be a point of reference for policy-makers, planners and development organisations within and outside Kerala and India, in water and other sectors.

Reflecting on my action-oriented approach, I believe that my workshop-based inquiries achieved what was intended from the research, i.e., it addressed the research questions by engaging workshop participants (and later the wider organisation) on an experiential learning process in the following way:

1. It helped stakeholders to think about ways to improve performance through exploring the complexities within the organisation as 'human activity systems' (Khisty, 1995; Checkland & Scholes, 1999)
2. It encouraged those engaged to articulate problems (and to devise possible solutions) from their own perspectives, and thus, to devise change that was appropriate to their own contextual setting
3. It helped to generate enthusiasm for change through encouraging participation and active involvement from those taking responsibility for implementing change and from those who would be affected by it
4. It enabled the development of a new approach (see section VI.3.1) based on participation, organisational development and learning concepts, and systems thinking that the organisation could adopt to effect change on a sustainable basis

My use of workshops was influenced by Lewin (1948), who said; "if people are active in decisions affecting them, they are more likely to adopt new ways" (*ibid.,* p202) and by soft systems thinking which defines situations through action concepts (Checkland, 1981; Checkland & Scholes, 1999). Mindful of the fact that it can take a long time to get research findings back into the action cycle, it was not the intention of this study to complete the action cycle, but instead engage participants with ideas that could lead to improvements in organisation learning and development through involvement and collective action.

On reflection, it became evident over time that engaging KWA with my inquiries caused the organisation to think differently about the issues at stake. This resulted in workshop participants arriving at a new appreciation of the issues explored; enabling the organisation to tackle seemingly intransigent 'messy' institutional problems previously perceived to be rooted in the lack of infrastructure needed to satisfy demands for services, rather than in the organisation's ability to tackle issues related to management and governance capabilities. This shift in thinking caused SSM to be used in a way that was not purely applying the methodology in a prescribed systematic fashion. Rather than use SSM in a conventional sense, I used it to compliment my wider use of participatory methods, which helped engage participants with the participatory nature of the inquiry. Combining approaches in this way became a vehicle for workshop participants to challenge values as well as processes and structures, and as such the approach became the foundation for organisational change ideas (see Table 2, Chapter V).

I recognise that because my research was based on a real-life project in a unique organisational setting, my research project cannot be repeated. However, Gummesson (1988) states "it no longer seems so obvious that a limited number of observations cannot be used as a basis for generalisation. Action researchers can generalise, but must exercise restraint in their conclusions, and must demonstrate the validity of their research; i.e., the

degree to which intended goals are accomplished" (*ibid.,* p78). This research has demonstrated in a real business environment, a change in attitudes and behaviour in those engaged with my inquiries (see section VI.2.1). I have attempted to validate my research findings by recording how changes in attitude and behaviour were observed, including a growing enthusiasm for change and the degree of receptiveness amongst stakeholders to using systemic methods for the change management programme (see section VII.2). These changes were acknowledged and validated by the project sponsor as well as by participants, based on comments and feedback received (see section VI.2.3).

VII.3.3. The Combination of Techniques Used

The combination of historical analysis, questionnaire, Focus Group discussions, semi-structured interviews, facilitated stakeholder workshops and development of diagrams and models as described in section IV.6 appeared to work well in this research. My theoretical perspective and past experiences partly determined their choice but there was also a pragmatic element of which techniques were available to me and which were desirable and feasible for use in my research situation. With hindsight I might have spent more time at the beginning exploring techniques already known to stakeholders rather than introducing my own but the starting conditions of this project limited what I could do in this respect. However, I did go to considerable effort to check understandings of participants and to draw in their experiences to the process design. My method of investigation was intended to generate new knowledge that could inform action. This included aspects related to the learning and communications processes within the organisation in order to generate enthusiasm for change. Qualitative understanding of the research process as events unfolded, and the findings and outcomes that resulted from this work identified substantially different perceptions and perspectives amongst stakeholders about the situations explored. This process informed a different approach to dealing with these situations, compared to previous management attempts to tackle the same problem

situations. Participatory approaches including elements of SSM provided key techniques and important underlying theory in this work. This provided the opportunity for the organisation to improve understanding of their situation, which led to a shift in thinking away from physical attempts to improve organisational effectiveness, to an understanding that emphasised complexities of human activity and the adoption of a more holistic approach to the problems in hand.

In analysing my data I felt that using abductive inference did allow me to build hypothetical explanations of how a capacity-building initiative might work in my research context. In some respects the models I used to introduce systems concepts (Figure 15) and to show how a 'new' progressive participatory systems approach for KWA might work (Figure 21) are examples of this abductive approach although I am aware that I did not use it in a formal or conventional sense.

VII.4. Critical Reflections on the Process of Developing the Model for the New Capacity-Building Approach for KWA

Critically reflecting on the process of developing the model for the new approach for KWA, I found that whilst developing an approach based on different perspectives was useful for gaining insights into situations, it also presented problems. For example, it was difficult for me to reach agreement with participants at times and for participants to agree amongst themselves on which elements to include in the approach. I tried not to impose my views, but instead encouraged brainstorming through open questioning, to guide the choice of elements to be included.

The pluralistic and subjective nature of the problems encountered and the need to accommodate mutiple perspectives also presented challenges. This to some extent related to the mix of social, cultural and political differences amongst the various stakeholders involved. Accommodating viewpoints was a time-consuming task, but participants agreed that this was a necessary step to ensure a design that they felt was agreable to all (refer to

participants comments in section VI.2.1). A further challenge was in accommodating all the facets of a real business environment, and as such the need to fit the scope of the initiative to the time available may have hindered the ability of those engaged to learn about and to include the richness of the world they actually experienced.

Having been influenced by SSM and other designs of processes, the approach may also be open to similar critique. For example, whilst the approach emphasises different perspectives and people's abilities to understand a system by relating it to previous knowledge, understandings and values, there is no standard on which these different perspectives can be measured. A critique of SSM, for example, is that one perspective is as valid as any other (e.g. Flood & Ulrich, 1990; Ivanov, 1991; Jackson, 1991b). As a standard is not provided, there could be confusion amongst those using the new approach (when devising systems of purposeful activity, for example) over which perspective should guide them. It may be that of those who are most powerful, a distinct risk in a complex business environment such as KWA. It could be construed, therefore, by some in KWA that the approach may thus become just another tool to manipulate the organisation to serve the needs of management while ignoring other aspects. Combining systems approaches with participatory OD and learning traditions was intended to mitigate this weakness. However, over-reliance on participation (especially in relation to consensus-building) could leave it open to criticism, in the same sense that a soft systems approach is criticised for portraying itself as open and participative. Jackson (1991b) for example, states that "the kind of open, participative debate which is essential for the success of the soft systems approach, and is the only justification for the results obtained, is impossible to obtain in problem situations where there is fundamental conflict between interest groups which have unequal access to power resources" (*ibid.*, p133). I tried to overcome this weakness (of some exerting power over others) by introducing the workshop rules at the

outset of this research and through my facilitation style as outlined in Chapter V (section V.3).

I also acknowledge that the new approach could be criticised for its relativistic stance (relativistic judgements of stakeholder's perspectives of what is feasible and desirable), which could be taken that any position, no matter how detrimental, is included and therefore cannot be judged as undesirable. Also, as the approach was developed by a relatively small number of stakeholders, it of course only includes the knowledge of those participants, and therefore, it could be said that its potential for learning is limited to the exchange of knowledge of the group involved. I sought to mitigate this limitation by drawing on my past experiences of similar interventions, as a means of broadening understanding and enriching debate amongst those involved in developing the approach, and through wider-engagement through the communications workshops (see section V.6).

VII.5. Strengths and Limitations of the Research

VII.5.1. Strengths

I was aware from my previous involvement on similar change programmes that a participative approach with vigorous questioning and debate about such fundamentals as "what are we trying to achieve?" and "what should we change?" was consistent with the aim of building capacity, enthusiasm and buy-in to the change process. According to KWA, this level of participation had not been used within KWA on previous change interventions and was seen by stakeholders as one of the strengths of the overall process of engagement (see participant views in section VII.6). In my view, the approach adopted in the workshops went beyond simply being participative, to one which could be better described as 'devolved decision-making'. Not only were the workshop participants and the CMT given an opportunity to participate, they were given the authority to make decisions required within the change management programme, something not done before. This only

occurred because of strong senior management support led by the newly-appointed Managing Director.

This research contributes to discourse on organisational, management and systems ideas by having been undertaken in a water sector business environment in parallel with a consultancy project, and has revealed both the challenges and the practicalities of negotiating the boundaries of research, facilitation and consultancy roles. My experiences as described in this thesis of working within these boundaries can potentially be a point of reference for other researchers working under similar conditions (see sections IV.5, V.3, and VII.3.1).

This research has also made a contribution from the perspective of extending knowledge and understandings of organisational and behavioural change in the contexts of Kerala and the water sector. It uses a range of methods, introduces systems ideas and draws on soft systems methodology in the process of inquiry. It goes on to propose and trial the use of a particular synthesis of ideas as a 'progressive participatory systems approach' (section VI.3.1, Figure 21) intended to assist the first steps in achieving organisational and behavioural change. The approach devised provided KWA with the opportunity to improve performance and long-term sustainability through a process of exploration of human activity systems, rather than looking to solutions based on engineering, as was previously the case.

VII.5.2. Limitations

I recognise that there were limitations to my research. My research has highlighted some of the complexities of organisational and behavioural change concepts but recognises that there are aspects of the organisation's culture which are wider than the roles, norms and values observed in those engaged with my inquiries. For example, whilst there may have been a change in attitude and behaviour in those engaged with my inquiries, my research has not been able to show that change in attitude and behaviour at an individual level has

impacted on the total perspective of the organisation as a whole. This aspect of organisational change would require further evaluative research.

I also recognise that as my findings are based on a single study this will affect the generalizability of these findings. For example, I acknowledge that although the workshops were intended to enable participants to explore actions to improve organisational performance and for me as researcher to explore participant interactions, evaluating actual changes to performance and behaviour was outside the scope of this research. Neither was there opportunity to return to the organisation to review the outcomes as part of further research. Therefore, it cannot be claimed that any change in behaviour resulted in actual implementation of long-term organisational change, although I had observed that many of the decisions made in the workshops were being implemented (see Appendix 10).

I also acknowledge the limitations of empirical studies, especially those of a qualitative nature such as mine. However, I considered that in an organisation such as KWA that displayed receptiveness to new ideas and a willingness to change, taking a systemic participatory approach (and the learning resulting from it) assisted it in the process of taking the first steps towards devising sustainable change interventions.

VII.6. Conclusions and Recommendations for Future Research

As outlined in section I.2., this research was motivated by my concerns over water problems in development contexts, which led me to explore human activity systems, using KWA as a basis for an empirical study of water management and governance issues. My experience of other projects and my review of previous interventions within KWA led to the scoping of an intervention that was based on actively involving those undergoing development in the change process. My method of investigation was influenced by an abductive perspective and I collected data of a qualitative nature – recall, descriptive, narrative and reflective, in the form of recollection of experiences obtained during the

implementation of the study. It was abductive in the sense that the views and experiences expressed by stakeholders throughout the process of doing my research were specifically considered while drawing inferences. This was done with a view to understanding how participants perceived the engagement process, whether they felt included, whether it had any relevance to their needs and interests and whether they benefited, if at all, from the exercise.

My research led to the development and initial trialling of a new approach to capacity-building and organisational-strengthening which in turn might have the potential to lead to institutional-strengthening, which I termed "a progressive participatory systems approach". The approach was trialled in KWA to help the organisation make decisions about their future and become self-reliant, and offers a new and challenging way for it to think through its interrelated institutional dimensions and to incorporate new vision into its activities.

The main contribution of my work, therefore, relates to the development of appropriate methodology for change interventions. As mentioned in Chapter IV, there were two key aspects of methodology covered in my research. Firstly, I develop and use appropriate methodology taking my research contexts and theoretical traditions into account, and secondly, my research was *about* methodology, in that it was apparent that KWA needed to explore new ways of tackling its own complexities which included reviewing potential new methods and techniques of inquiry. Whilst building on the work of others, to the best of my knowledge, my methodological approach is novel in the sense that the regionally-distinctive nature of the water and management issues that I am addressing emphasises more fully than the approaches that it draws on, the importance of building enthusiasm, establishing visible ownership for change, and in building management systems for KWA to improve the capacity to improve itself. It also informs a process by which iterative operation of the methodology promotes learning that could lead to desirable and feasible

change. Influenced by SSM and other methodologies, I developed an approach particularly relevant to the Kerala context by adding other dimensions that went beyond participation, where by design, those who engaged with my inquiries gradually assumed the lead role for managing the change process during the period of my research, and in that way the organisation's use of the methodology had potential to evolve. In the sense that my methodology was a source of insight into systems ideas and organisational development and learning concepts for those engaged with my inquiries, my research extends the use of methodology from a new perspective.

I have attempted to evaluate the effect that my research has had on facilitating learning, building capacity, and raising enthusiasm and ownership for change interventions. The conclusions reached from this research are summarised below.

My process and method of investigation was distinct from other studies of a participative nature in India, which have focused on the community or user group level, where mobilisation, involvement, appraisal and self-management have been the main drivers.

It was distinctive because:

1. It focused on the supplier (as opposed to the consumer) by exploring some of the supply-demand perspectives described as problematic at the outset of this research (also outlined in section II.2.2 and Figure 5)
2. It brought together and used in the Kerala context key theoretical concepts from organisational, management and systems traditions
3. The nature of the water issues being addressed were complicated by political and jurisdictional tensions between water conservation on the one hand, and competing demands for additional resources on the other (as depicted in Figure 7)
4. My methods of investigation encouraged active participation, accommodation of different perspectives, and the devolving of decision-making. My empirical study extends understandings and experiences of cultural perspectives within

development contexts, building on insights from Seppa¨la¨, 2002; Ongaro, 2004; Purnomo *et al,* 2004; Nidumolu *et al,* 2006; Colvin *et al,* 2008; Joshi & Huirem, 2009

5. Of the large scale of the organisation (responsible for water supply for an entire State) where project sponsors, senior managers and a cross-section of staff have been open to new approaches for exploring problems previously perceived to be water resource problems rather than management problems
6. Of the time duration of my research inquiry, which managed to engage the same stakeholders over an 18-month period

While participatory methods have focused strongly on and to a great extent emerged from work in developing country contexts, this was not the case for some aspects of my conceptual framework which brought together key concepts from different organisational development, learning and systems traditions from the 'west' which could co-exist with 'southern' traditions (Medoff & Sklar, 1994; Polidano, 1999b, 2001; Water Engineering & Development Centre, 2000; United Nations Environment Programme, 2002a; Asian Development Bank, 2003; Singh 2003; International Institute for Environment and Development 2011). Ralston *et al* (1993) describe this co-existence of cross-cultural management and organisational practices as 'crossvergence', suggesting that "there will be an integration of cultural and ideological influences that result in a unique value system" (Ralston *et al,* 1997, p183). In this regard I have made a contribution to extending knowledge and understanding of some of those concepts and the methodology from a new perspective. For example, my research extends the understanding of combining approaches that borrows from western and southern cultural and ideological traditions by introducing and testing inter-linked groups of techniques, in the following way:

- The use of a pre-research phase to generate initial enthusiasm for change amongst the most senior managers of KWA which led to the opportunity for

research to be carried out in parallel to my consultancy task. This included rapid appraisal techniques, the use of semi-structured interviews based on open questions, and triangulation to verify data

- workshops to ensure active participation from a cross-section of KWA stakeholders in the change process
- Using participatory workshop techniques to explore organisational analysis and synthesis, including structured brainstorming to identify issues, and values, and SWOT, in order to stimulate creative thinking and a shared focus on future possibilities
- The use of SSM in combination with OD and learning concepts to maximise the experiential learning opportunity and ownership of the systemic approaches introduced
- Linking people in the wider organisation to workshop participants in order to widen participation, though indirectly, in the learning experience
- Eliciting feedback from the wider organisation on initiatives for change devised by workshop participants, to encourage buy-in to the change process. This included the use of a structured questionnaire to record suggestions and feedback for change initiatives

This combination of techniques facilitated learning and a sense of ownership and enthusiasm for change (see section VII.2.3) at a level that was previously not experienced within KWA, and from this perspective my research contributes to discourse on combining systems traditions with OD and learning concepts as explored in section III.3.

From the perspective of generalising the learning provided by this research, I highlight the following factors which impact the applicability of my findings to other organisations:

- Receptiveness of individuals to change interventions
- Receptiveness of individuals to engage with new approaches

- The role of the facilitator
- The degree to which those undergoing change have a say in the change process

Therefore, whilst the progressive participatory systems approach described in section VI.3.1 resulted from a specific research effort, there may be potential for application in other similar development contexts providing the factors above are considered. Applied in the same way, the approach offers the opportunity for those undergoing development to tackle complexities through encouraging active participation in the change process. However, the applicability of the approach as a model for change interventions in other development contexts would require further research to test its replicability.

My inquiries presented the opportunity to compare theory with practice through a process of contextualisation (see Figure 22 below). Articulating in academic terms the experience and lessons learnt from the empirical aspects of this research can be a source of information to enrich further the rapidly-evolving area of capacity-building and institutional-strengthening in development contexts. In this sense I have made a contribution to discourse on the development and firming of theoretical perspectives for studying organisational change and behaviour, building on insights from Bell, 1999; Stacey, 2001; Bunch, 2003; Singh, 2003; Ison, 2008; Bell & Morse, 2010.

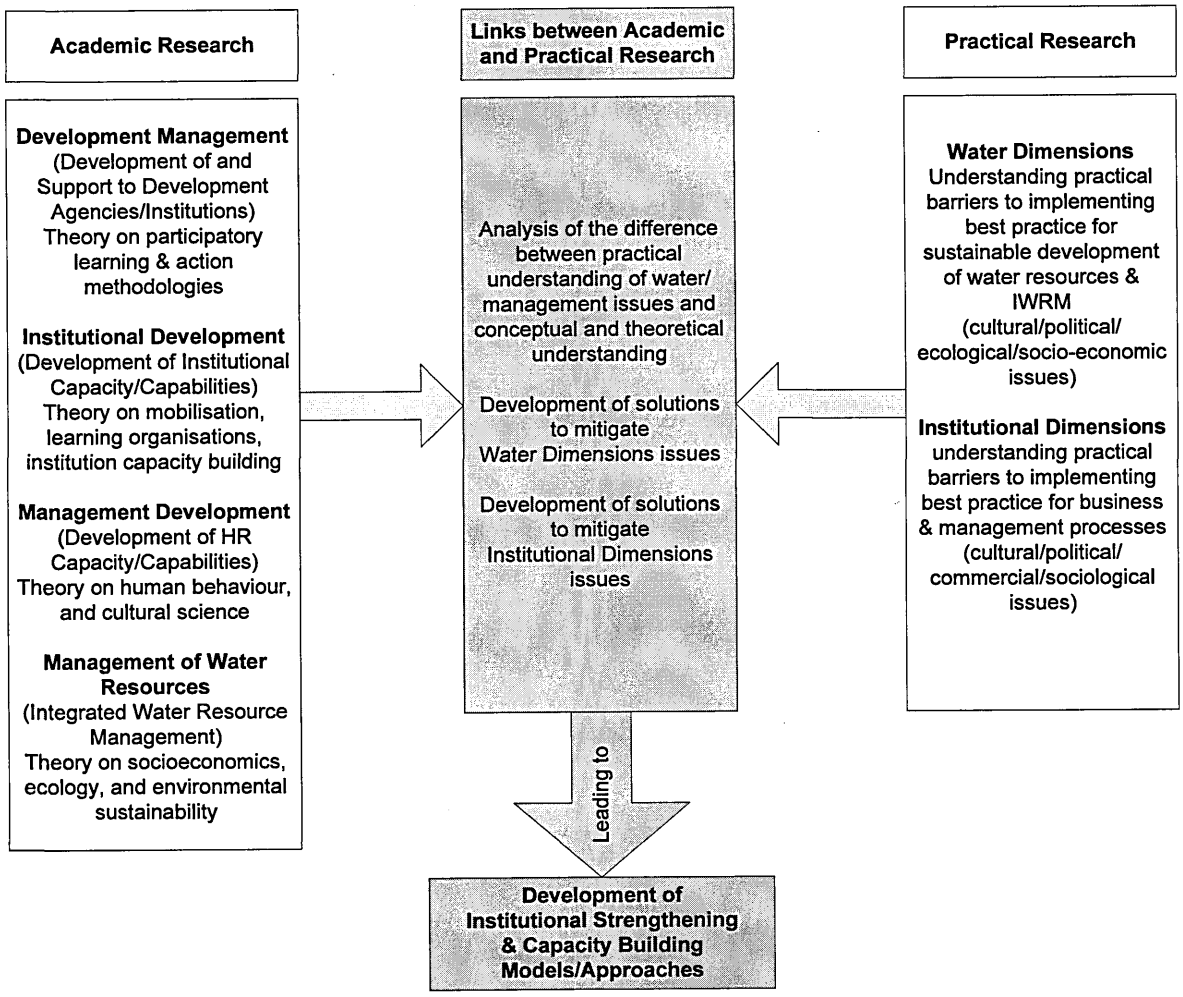

Figure 22 Links between practical and theoretical aspects of my research

Source: this thesis

The links between practical and theoretical aspects of my research as illustrated in Figure 22 depict the notion that empirical findings can be used to enrich conceptual and theoretical thinking through a process of inquiry and learning. The aim was to create conditions for shared learning that could inform action and future planning, and thus form the basis for sustainable development beyond the life of the research. To a certain extent this has been achieved and KWA has plans in place to ensure that initiatives are owned, implemented and managed by those that will benefit from the expected outcomes - the organisation itself and the consumers (see section V.4.1 and Appendix 10).

This research has been a qualitative study based on observation and recall of discourse and narrative, through documenting and analysing the perceptions and experiences of

stakeholders involved with my inquiries. No statistical or comparative analysis has been attempted since the purpose of this study was to uncover enabling factors or conditions to guide the development of the new approach for capacity-building described in Chapter VI, and to gain insights of the learning experienced by the stakeholders involved.

The experience gained in developing the progressive participatory systems approach was reflected upon on an on-going basis and led to several changes over time, which resulted in greater inclusiveness and participation, thus enhancing the methodological rigour of my research. Developing the approach in this way promoted mutual learning, and incorporation of experiences, knowledge, and concerns of the various stakeholders, further fostering a sense of joint ownership whilst minimising the potential for conflict amongst stakeholder groups. KWA views the approach as a tool for development that can be adapted as the organisational dynamics change over time.

My research has played a role in catalysing a dynamic of hope for further development within KWA. This is reflected in KWA's desire to continue with the approach, which is viewed by some in the organisation as a useful conceptual tool for participation, collaboration, ownership-building, and knowledge acquisition (see stakeholder comments in section VII.2.4). However, this research has raised questions and issues that suggest a need for future research in the following areas:

- Whilst my research was intended to help KWA stakeholders explore methods, approaches and actions to build capacity and improve organisational performance, evaluating actual changes to performance and behaviour was outside the scope of this research. Returning to KWA to conduct further evaluative research is recommended in order to assess the extent to which my research was able to influence a change in management behaviour in KWA with regard to adopting a participatory systemic approach to tackling water management and governance issues (i.e., to assess whether KWA continued to

apply the progressive participatory systems approach after the research had ended) and the effect that the approach may have had on organisational performance, if any. As suggested by Checkland "the aim of an intervention is to donate the approach to the participants in the problem situation, to get them to use it and to leave them with the ability to use it in future" (Checkland, 1986, p2).

- The applicability of the 4-stage approach as a methodology for change interventions in other development contexts would require further research. It is recommended therefore that further evaluative research is carried out in other organisations in order to test the replicability of the approach in similar contextual settings within or outside of the water sector where organisations are receptive to trialling systemic participatory approaches to change interventions.

In conclusion, the research described in this thesis holds promise for KWA to continue on its journey of exploring ways to build capacity that could potentially lead to strengthening of the water sector in India at an institutional level. It brought together approaches from systems, OD and learning traditions, and in the process, has raised awareness of how combining approaches, intended to be participative and systemic, could help KWA better understand the problems faced and how they might be tackled. An overview of these traditions was provided and discussed in Chapter III. I cannot claim that I have 'solved' KWA's problems, or even alleviated them. I can claim, however, that I have helped KWA take one small step towards framing its situation in a holistic manner as a basis for continued development. Hopefully this step will lead on to new perspectives and new ways of thinking to help KWA deal with the difficulties it faces. Although there is still resistance amongst some decision-makers within KWA to think and decide systemically, I hope that in the future, as a result of the inclusiveness and ownership of change by staff engendered through my approach, this resistance will be overcome.

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Appendices

Appendix 1: Outline of the Organisational Review Study

The methodology used for the review incorporated the following steps, and resulted in a number of recommendations for KWA to consider.

- Diagnostic: identifying problems within KWA, as well as external factors impacting KWA's performance
- Problem analysis with recommendations to mitigate weaknesses
- Formulation of suggested approaches and strategies for KWA consideration
- Formulation of a draft 'Improvement Plan' detailing actions, responsibility and timeline; a 'roadmap' for transforming the organisation to a customer responsive, commercial and sustainable business

In carrying out the review, organisational arrangements, management styles, cultural aspects, commercial aspects, and corporate governance within KWA, were compared with other water utilities and similar organisations throughout the world within my range of experience, in order to help the company to devise the best way forward.

My approach was to work closely with staff throughout the organisation, to gather information that was pertinent to them. This involved in-depth interviews with a cross-section of staff, and in order to save time, I provided a list of topics and specific questions beforehand, in order to provide contextualisation and direction for discussion. Due to the usual time and resource constraints, I adopted a 'rapid appraisal' approach to engage the client throughout the review process (see Chapter III: literature review).

The organisation review highlighted a number of challenges faced by the company in the delivery of its functions. These include funding, organisational issues, and administrative/management constraints placed on them by the Government of Kerala. KWA on the whole has shown considerable dedication and resourcefulness in working within this underlying framework of constraints. However, it was felt that more could still

be achieved to improve organisational performance, through increased focus on institutional strengthening and capacity-building elements. A number of examples are cited below that came out of the review, to illustrate the variety of issued faced by the organisation.

1. At the time of the review, KWA was uncertain about the number of staff employed. The number of employees budgeted was 8677 (excluding contract staff) in accordance with the "KWA Budget Estimates 2004-05" document. However, the actual number of employees in post at that time was unknown. KWA has been unable to accurately determine this, as staff records and payroll information is manually maintained at divisional level and central collation has not been conducted due to the lack of computerised employee and financial systems. It was estimated that during 2003-04, KWA employed between 10,000 and 11,000 staff, including contract personnel. Based on 848,398 connections (including street taps) the ratio of employees per 1,000 connections is approximately 13. This is high compared to the median figure of 7 for other Asian countries where the number of employees per 1,000 connections ranges from 2 to 25.[28] In part, the staff ratio is high due to State Government policy to allocate jobs to civil service companies based on social rather than efficiency considerations.

2. KWA's business and operational practices, which have remained unchanged for many years, espouse an organisation that provides essential services for the enhancement of public health, rather than a commercial entity seeking to make a return on investment. As such, the use of tariff or pricing mechanisms to regulate water usage is not actively or readily applied, as the cost of services is highly politicised and KWA need to get GOK approval for price adjustments. This results in under-funding, lack of investment, deteriorating infrastructure and poor services, as the sector relies heavily on the GOK to finance its losses. This in turn limits KWA's ability to pursue its mission without undue

[28] Source: http://www.adb.org/Water/Indicators/Profiles/reg_prof_fig18.pdf [02/03/05]

regulatory or political interference. This in turn can adversely affect the socio-economic conditions of those that rely on these services, and from an ecological perspective, can adversely affect the environment. This highlights the need for taking an integrated approach to water management and governance.

3. Hand pumps and 'stand-posts'[29] (to supply areas where individual house connections are not available) are installed by KWA, Local Bodies and the Ground Water Department, but, it is not clear who takes responsibility for the maintenance of these, or for the coordination of installation. A significant volume of water is supplied by KWA through stand-posts, but, there is insufficient operational and commercial priority assigned to their management. This results in lost revenues, as payments from Local Bodies (who are responsible for paying bulk water charges to KWA for water delivered to communities via stand-posts) are invariably very late and aged debt is uncollectable. Also, rural supply schemes are implemented, owned, managed, operated and maintained by a number of agencies, including KWA, KRWSA, Local Bodies (Panchayats), Community Groups, etc. Any combination of funding, implementation, asset ownership and O&M, currently exists between these agencies, thus creating overlaps and inconsistency of approach with regard to institutional and organisational arrangements and responsibility. For example, the GOK requires KWA to hand over more than 1,000 rural water supply schemes which fall within the boundary of one Panchayat, having independent sources, to the Local Bodies, but, most of these still remain with KWA. This highlights the need for clear separation of roles and responsibilities amongst Sector agencies.

4. KWA is responsible for setting water quality standards and currently uses the Indian Standard ISI 91(revised in1991) which is based on acceptable world standards for drinking water quality. However, due to the lack of computerised management and laboratory

[29] Stand-posts are often referred to as 'public taps' and are used to supply communities in areas where a piped water supply is available in the vicinity but individual house connections have not been provided. Public taps are common in poorer areas of urban society or in 'informal' settlements where individuals collect water in containers. Hand pumps are common in rural communities where water is drawn from shallow wells.

information systems, it is difficult to determine the extent to which KWA comply with the relevant standards throughout the various stages of the water production/water supply process. This means that currently KWA is effectively 'self-regulating' for the purposes of meeting water quality standards, as there is no independent overseeing body. Having said that, the GOK Public Health laboratory do take periodic water samples from public taps and send the analyses to KWA, although it is understood that the State Health Department do not impose or 'police' the required standards set by KWA. Also, the provision of sanitation infrastructure and services is not high on KWA's agenda. At present, KWA only has two wastewater schemes in operation (at Trivandrum and Kochi), with a third scheme at Guruvayoor under construction. The Trivandrum scheme, which has 75,000 connections, is understood to be overloaded, and consequently no new connections have been made during the past few years. Some new sewers are under construction to alleviate the problem. The Kochi scheme, which includes a sewage treatment plant built in the 1960s, only caters for approximately 1,000 connections. The lack of focus on wastewater may stem from the fact that KWA does not appear to have responsibility for legislation, management or monitoring of wastewater from domestic, non-domestic, industrial or local bodies. This is entrusted to the Pollution Control Department (under the State Health Department). As with water quality standards, there are no effective means of ensuring that wastewater discharge consents are set or met, as again, KWA are responsible for effluent standards and there are no independent checks for effluent discharge to watercourses. The lack of investment and focus may also stem from the fact that KWA's sewerage operations do not generate any meaningful revenue (KWA makes a connection charge and takes a deposit for sewerage services but no usage charges are levied). As in the case of rural water supply schemes, a number of agencies are involved with sanitation schemes sponsored by various government and non-government organisations. This highlights the need for clear separation of regulatory and service delivery responsibilities.

5. With a drive to meet its obligations to supply an ever-increasing demand for water, the prime focus and organisation arrangements (structure, skills, competencies) are heavily geared towards project planning, investigation, design, funding, tendering, material procurement, contract management, etc. of capital schemes (more than 200 schemes are currently on-going). Concentrating heavily on implementation of new schemes has invariably contributed to the lack of focus and hence operational performance of existing schemes, and underdevelopment of other business critical activities. Business-critical activities such as Master Planning (strategic planning, source development, asset acquisition), Customer Services, Systems Development, Supply Chain Management, Operations & Maintenance Management, Business Development and Community Relations, are not centrally 'managed' by 'process owners' or 'process champions', and as a result remain underdeveloped. This has led to the absence of policy development in these areas as well as other areas, such as HRD, health and safety, security, contingency planning, etc. Also, the practice of promoting senior staff into key positions immediately prior to retirement causes a lack of continuity in developing sustainable policies and processes for improved performance. At the same time, valuable experience and knowledge is being lost, as routines are not in place to capture and transfer knowledge. Building staff capacity will play an increasingly critical role, as new Projects such as the KWSP are delivered. For example, whilst relevant training will be provided during implementation of the Project, the KWSP presupposes that KWA staff will have the capacity to receive training and to take on the additional skills required to operate and maintain the new systems introduced. Where new technology has been implemented in the past, uptake has been slow, and the benefits associated with computerisation are largely lost, as workflows remain unchanged due to lack of process review or 'business process re-engineering'. This highlights the need to focus on capacity-building initiatives at individual level, which in turn, can lead to increased organisational effectiveness over time.

Whilst the foregoing represents a significant number of issues requiring consideration, with the right support from KWA's senior management team, each issue creates an opportunity for improvement.

The review resulted in a report detailing a number of recommendations and suggested actions with a 'timeline' for implementation. In order to ensure implementation of the various initiatives outlined in the report, it was suggested that responsibility for implementation should rest with the company. The level and rate of implementation would depend on the level of resource allocated to make the changes, and success would be limited if KWA were to rely on staff already busy with their 'day jobs'. Dedicated 'off line' resource would be most effective, and it was therefore recommended that KWA develop the plan by assigning appropriate off-line resources to ensure systematic and effective implementation. This would become the responsibility of the KWA change management team (described in Chapter V).

The organisational review report was presented to the Senior Management Team (30 of the most-senior staff, up to and including the Managing Director) on 15/06/05, and again to the Senior Management Team, this time in the presence of the Chairman of the KWA Board (to raise the profile of the initiative) on 17/06/05. This provided the opportunity for critical review and understanding of the key findings, as well as to gain a consensus view as to the best way forward for the organisation to proceed with change, that they felt was relevant, and achievable, in the local context. There was broad consensus at both meetings that the review had identified the key areas that required improvement, and that the recommendations, draft strategies, and improvement areas, detailed in the review, should be used to guide a 'business transformation' process. The key messages and consensus reached by the senior management team are provided in the following box, which serves to describe the agreed imperative and direction for change.

Key Messages

- A new approach to organisational development was needed (systemic approaches were outlined)
- Business as usual was not sustainable, and KWA should therefore commit to an agreed 'Organisation Transformation Programme', and sponsor and own the initiative
- KWA needs to change 'hearts and minds' (culture and work ethics); government-style approach to operating KWA must change
- Capacity-building was necessary for 'assets', 'processes', 'systems' and 'people'

Support Suggested

- Active Board sponsorship for change to commence
- Appointment of a dedicated 'off-line' change management team, empowered to lead, determine, prioritise and implement agreed changes
- Detailed implementation plans prepared by the change management team to be developed through a series of workshops facilitated by consultants
- Help to communicate plans to keep the entire workforce informed of the change process and how this will affect them
- Help to facilitate change through leading by example, and be proactive to any resistance to change

Agreement Reached

- KWA fully agreed with the findings of the Organisation Review Report that there was an imperative for change
- KWA supported the 'change management process' approach outlined at the presentations. The KWA Board will sponsor the programme and will delegate responsibility for implementation to their appointed change management team to be set-up shortly
- The present time could be the last chance for KWA to strengthen and transform itself as attempts to act on interventions in the past were not successful or failed to 'get off the ground'. A sense of urgency was stressed

The first step was for the KWA senior management team and a cross section of stakeholders to meet and discuss the Organisation Review recommendations, give guidance on priorities, and make suggestions about who the change management team should be. A 1-day change management workshop concentrating on strategic issues was agreed for this purpose. This took place offsite on Friday 24 June, 2005. The methodological approach taken and the deliberations and outcomes of this and further workshops are described in Chapter V.

Appendices 2 – 5 Workshop Deliberations and Key Findings

The first workshop was developed to present the findings of the organisation review study in order to stimulate debate about the issues at stake within the organisation, and for participants to discuss and debate the issues from their perspective. This led to (through three further workshops) expression of the problems identified and scoping of desirable and feasible change through an iterative process of inquiry and learning. The deliberations and outputs of the four workshops are summarised in the following four appendices.

Appendix 2: First Workshop Deliberations and Key Findings

The first workshop was held on 24 June 2005, for 17 KWA stakeholders to review the findings of the organisational review study in order to stimulate debate about the issues at stake within (and outside) the organisation. The first workshop was effective in introducing systems concepts, and the notion that the process of inquiry is itself, a useful system of learning and action. The workshop demonstrated that the participants had varying, but equally valuable contributions to make, and that the process employed helped to bring clarity to problems identified, and at the same time, improved the capacity of the participants to think about and articulate their own arguments. The first workshop achieved the following outputs:

- A consensus view on the key issues at stake within and outside the organisation
- Development of a vision and mission statement for the organisation
- A consensus view of the key strategic aims for the organisation

Procedure: The participating members from KWA were divided into 2 groups. The groups were split, ensuring a mix of specialisms and seniority, to encourage participation and different 'world views', whilst defining the 'problem situation'. One facilitator was allocated to each group. The group self-selected a member to act as 'scribe' for recording individual views and ultimately to present the group findings at a plenary session.

Table 1: Group A. Findings – Break-out Session 1

Facilitator	Tony De Seta
Group A. Findings	External Drivers for Change
	• Customer expectations • Government policies with respect to water tariff, constitutional amendments, public-private participation (PPP), discriminatory practices • Political support from Government and political interventions from trade unions • New players in terms of competition • Emergence of new technologies • Depletion of sources • Social commitment • Funding agencies • Sector agency co-ordination • Availability of finance • Increasing input costs • Environmental factors • Lack of autonomy • Market forces • Globalisation • Benchmarking
	Internal issues inhibiting Change
	• Trade Union interventions • Mind-set • Work culture • Unwillingness to change • Lack of organisational discipline • Lack of professional management • Aversion to new technology – lack of state-of-the-art • Lack of commitment • Old codes and manuals – should have exclusive codes / manuals / rules / regulations • Pyramidal organisations leading to power concentrated at top • Poor delegation • Insecurity of staff regarding KWA's future • Low morale • Poor project management • Poor personnel management • Lack of exposure to new technology • Lack of MIS / Database • Poor knowledge management • Inadequate work distribution • Lack of performance appraisal system • High unaccounted for water • Mixed and confused responsibilities
Vision	The following views were recorded in order to aid framing a vision statement: • Health for all • Supply wholesome water and dispose of wastewater in an environment friendly manner • Water for all

Facilitator	Tony De Seta
	• Seek service excellence • Water and wastewater services for all • Professional organisation Collating the above views the Vision Statement was framed as follows: *"Serving the community by supplying wholesome water and disposal of wastewater in an environment friendly and sustainable manner"*
Mission	• 100% coverage in 5 years • Implement sewerage systems in all urban areas of Kerala in 10 / 15 years • Make KWA a financially self-sufficient organisation in 5 years • Ensure employee satisfaction • Ensure a people-friendly organisation • Transparency in all we do • ISO organization

Table 2: Group B. Findings – Break-out Session 1

Facilitator	Rodney Amster
Group B. Findings	External Drivers for Change
	• Water Supply Act • Policies of Government for water supply for the next 5 years • 73rd and 74th amendment of the constitution • Strategy of funding • Source of funding • Competition from other 'similar agencies' • National water supply policies • Political interventions • Political cycle of Government • Media and customers • Cultural status • Trade Union activity • Environmental effects • Interdepartmental relations • Planning Board directives • Industrial developments • Benchmarking of present system • Sustainability of source • Supply chain • Human Resources – Rules of recruitment / choice of manpower / policies of Government for recruitment • Central Government guidelines for funding of 'new projects' • Topography of Kerala – water resources • Red tape and bureaucracy
	Internal issues inhibiting Change
	• Political / ministerial interventions • Lack of professional approach • Poor time-management • Poor customer relations • Lack of team work / leadership qualities • Poor financial management • High expectation of employees

Facilitator	Rodney Amster
	• No Management Information System (MIS) • Lack of deployment strategies • Poor asset management • High costs • Lack of acceptance of new technologies • Poor attitudes towards change • High unaccounted for water • Lack of optimum utilisation of infrastructure • Lack of preventative maintenance • Lack of material management (software) • Low Tariff • Poor project management • Lack of monitoring • Poor employee/employer relationship • Lack of attention to employee welfare • Lack of care and attention towards subordinates • Red tape creating inefficiencies
Vision	The following views were recorded in order to aid framing a vision statement: • Affordable and reasonable • Contribution to health • Ready supply and quality water at our finger tips • Continuous quality service to all in Kerala Collating the above views the Vision Statement was framed as follows: *"Continuous excellent, quality service to all in Kerala"*
Mission	• 100% coverage in 5 years • Implement sewerage systems in all urban areas of Kerala in 10 / 15 years • Make KWA a financially self-sufficient organisation in 5 years • Ensure employee satisfaction • Ensure a people-friendly organisation • Ensure transparency in all we do • Become and ISO certified organization

Table 3: Group A. Findings – Break-out Session 2

Facilitator	Tony De Seta
Group A. Findings Strategic Aims	*1. Improved Service Coverage* Achieved through: • 100% coverage for water supply and 100% coverage for sanitation / wastewater disposal in the urban belts • Safe and quality water for everyone in 5 years. Sanitation and waste water disposal for every urban dweller in 10 – 15 years • Compliance to quality standards up to 95% within 5 years • ISO certification of water treatment plants
	2. Benchmarking Achieved through institutional strengthening for: • Professional management • Capacity-building • Financial sustainability

Facilitator	Tony De Seta
	• Modern technology (information technology and information services)
	3. Customer Centred Organisation Providing: • Easy access and quick response • Cost-effective service • Customer service systems viz. proper billing, complaint redressal, etc.
	4. Improved Planning • Needs-based planning • Long term comprehensive planning for: • Finance • Human resources • Assets • Water resources
	5. Improved Project Implementation • Proper investigation • Optimal design • Proper project report • Realistic estimates • Transparent procurement procedures • Proper contract supervision • Proper financial control • Avoid delay in construction
	6. Improved O&M Practices • Preventive maintenance • Cost reduction through energy audit, unaccounted for water studies, etc. • Performance evaluation
	7. Professional Human Resource Management • Professional HR department • Human resource development • Performance appraisal • Accountability • Ownership feeling • Customer orientation
	8. Public Relations and Corporate Image Building • Professional Public Relations office • Information dissemination through website
	9. Compliance with Statutory Audit, Vigilance etc. • Benchmarking of all Activities

Table 4: Group B. Findings – Break-out Session 2

Facilitator	Rodney Amster
Group B. Findings Strategic Aims	*1. To become independent from Government* (Benefit is more opportunity to improve operational activities)
	2. Cost reduction by Proper Utilisation of Staff
	3. Energy Cost Reduction

Facilitator	Rodney Amster
	4. Introduction of Preventive Maintenance System
	5. Reduction in unaccounted for water
	6. Structural Reorganisation on a Function Principle
	7. Total Quality Control / Monitoring and Audit • Project Implementation • Maintenance • Production • Materials Management
	8. Corruption Control and Elimination
	9. Making full use of IT and IS Investments
	10. Investment in New Technology which achieves Cost Reduction and / or Improved Customer Services
	11. Improvement in Supply of Materials
	12. Industrial Water Supply – meet the Demand viz. Kochi
	13. Customer/Service Connection where Technically and Financially viable
	14. Supervision Cost Recovery
	15. 100% Billing and 100% Collection to be ensured

At the plenary session the workgroups came to a consensus on the company's vision, mission, and nine strategic aims. These were subsequently approved by the KWA Board and published on the company website. These are shown in the box below.

KWA's Vision
We will provide quality water supply and wastewater services in an environmentally-friendly and sustainable manner.

KWA's Mission
We will transform ourselves into a customer-friendly organisation providing services at the doorstep. We will achieve this by:

- Being open and honest in our business dealings
- Being financially self-sufficient
- Valuing and developing our employees
- Continuously improving our work practices

KWA's Nine Strategic Aims

- Meet our statutory obligations
- Operate as a financially, independent and autonomous body
- Improve commercial and operational practices
- Focus on customer services
- Restructure KWA to become a "Process" organisation
- Invest in developing our employees
- Plan, invest in and maintain assets
- Operate all our assets efficiently
- Make full use of IT and IS investments

Appendix 3: Second Workshop Deliberations and Key Findings

The second workshop was held on 06 September 2005, for participants to review and discuss the consensus reached at the first workshop, and to agree that these were still appropriate and desirable. It built further on the strategic aims put forward by the team. The aim was also to stimulate debate about the likely content of the organisation's first strategic corporate plan. The workshop was effective in enabling the participants (through break-out sessions, workgroup discussions, presentation and debate at plenary sessions) to:

- Reach a consensus on the scope of KWA's first corporate plan
- Reach a consensus on the performance measures and targets that could complement the 9 strategic aims already agreed at the first workshop

Procedure: The participating members from KWA were divided into 2 groups. The groups were split, ensuring a mix of specialisms and seniority, to encourage participation and different 'world views', whilst defining the 'problem situation'. One facilitator was allocated to each group. The group self-selected a member to act as 'scribe' for recording individual views and ultimately to present the group findings at a plenary session.

Table 1: Group A. Findings – Break-out Session 1

Facilitators	Tony De Seta / Bikramjit Sen Gupta
Group A. Findings	Objective: Coverage • Covering all habitations within 5 years (2010) as per following performance targets: • Piped water supply • Minimum service level of 40 lpcd in rural areas and 70 lpcd in urban areas
	Objective: Quality • Water to all by 2010 conforming to IS: 10500. This will be achieved by: • Achieving quality from the beginning in new schemes • 63 old urban schemes: upgrade 10 schemes/year; 2006-2010 to desired water quality standards. Additional load to be taken in the last year i.e. 2010 • 1737 old rural schemes: upgrade 200 schemes/year; 2006-2010 to desired water quality standards. Additional load to be taken in the last year i.e. 2010

Facilitators	Tony De Seta / Bikramjit Sen Gupta
	Objective: Finance • Presently (2005) – Recovery through revenue 42%; 28% subsidy; 30% liability • Target (2007) – Recovery through revenue 50%; 28% subsidy; 22% liability • Recovery rate shall be increased through tariff revision (1st revision planned by the end of 2005); increased efficiency in billing and collection (computerised bimonthly billing in urban areas, increased efficiency in meter reading and replacement, increasing current collection efficiency of 85% in 2005 to 90% in 2007); reduction in Unaccounted For Water (UFW) • Decreased dependency on subsidy shall be achieved by reduction in power tariff; process efficiency; energy savings through energy audits; arrears recovery • Total arrears Rs.300 Crores out of which 50–60% is non-recoverable. Target arrear collection in FY 2005–2006 is Rs.30 Crores • UFW reduction from current level of 25–30% in 2005, to 25% in 2007 and 15–20% in 2010
	Objective: Project Monitoring • Data collection regarding viability of on-going projects • Taking up a policy of implementing scheme when funding is firm; land and other infrastructure are clear and available • Target for completion and commissioning of 200 on-going projects year-wise is as follows:2006: 30, 2007: 30, 2008: 40, 2009: 40, 2010: 60

	Objective: Customer Services
	• New connection – to bring down the present (2005) waiting time from 6 months maximum to 1 month within 12 month time frame
	• The present (2005) norm of street tap distribution is 60 nos. per 100 households. The target is to bring it down to 20 per 100 households by 2007
	• In 2005 60% of the water meters are non-functional across the state. The target is to bring it down to 25% by 2007 in urban areas
	• To make the complaint redressal system absolutely transparent to the customers
	• Target to standardise the unit cost for house connections, including plumbing services by 2006
	• Computerised Complaints Redressel System (CRS) to be commissioned within 6 months with the following objectives:
	  • To attend to complaint within 24 hours
	  • If there is delay in attending to complaint within 24 hours due to uncertain reasons, the same to be intimated to the customer within 24 hours
	  • House connection repair up to meter point to be undertaken and completed within 6 months' time frame
	  • To conduct Customer Satisfaction Surveys

	Objective: Human Resource Management • HR department to be headed by a professionally qualified person • To conduct Employee Satisfaction Survey once a year • To establish proper PMS • To identify training need of each employee and communicate the same
	Objective: Information Technology & Information Systems • Implementation of IT Master Plan by end 2007

Table 2: Group B. Findings – Break-out Session 1

Facilitators	Rodney Amster
Group B. Findings	Water Quality • Ensure drinking water quality as per CPHEEO, WHO, European, AWWA Standards • Increase microbiological tests: *E. coli* • Increase the number of physical tests: turbidity, colour and odour • Increase the number of chemical tests: Iron, Manganese and Fluoride content; hardness The group elaborated with an hypothetical compliance example: • Water Supply Scheme (WSS) with Water Treatment Plant (WTP): 95% compliance at source, 85% at customer taps • WSS without WTP: 85% compliance at source, 75% at customer taps
	Service Levels • Scheme specific in terms of time and quantity; group schemes (population served) The group elaborated with an example for compliance: • Trivandrum: 150lpcd, 24x7 supply at 90% compliance • Kochi: 150lpcd, 6x7 supply at 80% compliance
	Revenue • Increase billing efficiency from 80% to 90% • Increase collection efficiency from 80% to 90% • Increase percentage of working meters to 60% • Identify and eliminate unauthorised connections by 50% • Increase computerised billing and collection from 60% to 80% • Increase service connections by 25%/year • Increase industrial and non-domestic connections
	Non-Revenue Water • Introduction of 100% bulk water meter within 5 years • Reduction of physical losses by 5%/year • Reduction of non-physical losses by 5%/year
	Cost Reduction • Average Rs.9.16/kl to be reduced by 5%/year through optimisation of plant performance

Table 3: Group A. Findings – Break-out Session 2

Purpose of the Session	The general content of the corporate plan had already been elaborated on in the Organisation Review Report (pp56–57). This was presented to the participants and the purpose of the session was to suggest changes/modifications/additions to the contents.
Facilitators	Tony De Seta / Bikramjit Sen Gupta

	The following were suggested to compliment the contents list suggested in the Organisation Review document:
	• Frame the rules of KWA covering:
	  • Service provision
	  • Schedule of rates for connections and tariffs
	  • Delegation of powers
	  • Employee regulations (terms and conditions of employment)
	• Water quality and wastewater quality standards

	• KWA's role in the future
	• KWA's 5-year business horizon including tapping of certain niche market potentials, such as:
	  • Handing over of schemes to Panchayats / Local Bodies
	  • Consultancy and implementation of water supply and sewerage schemes of other organisations such as Ports, Railways, etc.
	  • Water quality monitoring and surveillance
	  • Charging for wastewater services
	  • Desalination plants
	  • Value added services to institutional customers
	  • Industrial effluent treatment
	  • Research and development services on water / sanitation / treatment processes
	  • Bottled drinking water
	• Human resource management
	  • Policy to retain people
	  • Training needs identification
	  • Restructuring of KWA
	  • Manpower planning
	• Optimisation of staff productivity

The workshop enabled participants (through break-out sessions, workgroup discussions, presentation and debate at plenary sessions) to:

- Scope the organisation's first corporate plan (breakout session 2)
- Agree on performance measures and targets that could complement the strategic aims, the issues and constraints that might be encountered, and how these might be overcome in order that the aims could be achieved. Performance measures and targets included the following:
  - Meeting 100% service coverage within 5 years
  - Meeting minimum supply levels of 40 litres per capita/day in rural areas
  - Meeting agreed water quality standards to IS:10500 (Indian Standard for drinking water quality)
  - Improving revenue collection from 85% to 90% in 12 months
  - Reducing the amount of revenue lost through water leaks from 30% to 25% in 12 months
  - Reducing the time it takes to provide new water connections from 6 months to 1 month

- Attending to all services complaints within 24 hours

The performance measures agreed at the workshop were subsequently summarised and presented to the KWA Board. The Board agreed that these would be incorporated into performance objectives for the organisation, to be adopted throughout the State.

Appendix 4: Third Workshop Deliberations and Key Findings

The third workshop was held on 18 March 2006, for participants to finalise, through group discussion and consensus, the work items to be implemented in the first phase of the Change Management Programme. The workshop was successful in categorising work items, and splitting them into those that could be completed in-house with the support of the consultants and the CMT, and those that would require external assistance in the form of additional specialist consultancy contracts.

Table 1: Agreed interventions to be implemented internally

No.	Internal implementation
1	Publishing the agreed vision, mission statement and strategic intent on the company website
2	Assessing the current IT skills of KWA employees
3	Software development and implementation for water quality reporting and treatment plant inspection
4	Identification of key large customers (consumption > 100 cubic meters/month) – listing, meter checking and taking action
5	Examine current metering, billing and revenue collection mechanisms, and draw up agreed strategy and action plan for improvement
6	Separation of 'Projects' and 'Operation & Maintenance' (O&M) roles
7	Separation and independence of water quality surveillance wing

Table 2: Agreed interventions to be implemented with external assistance

No.	
1	Organisational restructuring – taking a process approach advocated in the organisation review by the author
2	Preparation of a corporate plan and development of corporate planning capacity
3	Implementation of a performance management system
4	Rationalisation and writing of employee handbook based on the draft produced by the author
5	Software development and implementation for a staff database system
6	Software development and implementation for an improved customer database system and preparation of a tariff study
7	Non-revenue water reduction programme – establishing network management and control capabilities
8	Development and implementation of software for an asset management system
9	Customer orientation programme for field staff
10	Streamlining decision-making and delegation of powers with introduction of IT systems
11	KWA Utility Management Development Programme for middle and senior managers
12	Induction training for all employees

Appendix 5: Fourth Workshop Deliberations and Key Findings

The fourth workshop was held on 26 October 2006, for participants to deliberate, through interactive presentations and group discussion, a number of issues presented by the JBIC review mission and to review progress of the 'Reform and Improvement Plan'. The following table summarises the actions agreed at the workshop.

Table 1: Key actions agreed

No.	Required Action	Responsibility
1	Roll Out of Pilot Network and Software Applications in Trivandrum • Brief write-up on the software applications and the guidelines for selection of personnel • Circulation of write-up by Chief Engineer (Southern Region) to the departmental head of offices covered under the pilot network • Tentative list of users of software under pilot network • One-day workshop to be organised at Trivandrum in the first week of January, 2007 to finalise the list of users for the computer awareness training	TEC [Tokyo Engineering Consultants] CE (JBIC)-Chief Engineer, JBIC assisted Kerala Water Supply Project CE (SR)-Chief Engineer, Southern Region Departmental Heads KWA (KWSP) / TEC
2	Water Meters • Finalise the specification, make, price and list of approved vendors of water meters	CMT [Change Management Team]
3	Leak Detection Unit • 3 units (1 AE [Assistant Engineer] and 2 Draftsmen) to be set-up in 3 regions • Give training to 2 AE and 4 Draftsmen in each region	MD / Regional CEs TEC
4	Unaccounted for Water (UFW) • The Pilot Leak Detection Study Report by TEC Consortium should be circulated to the Chief Engineers for review and to take the necessary actions	CE (JBIC) / Regional CEs
5	Corporate Planning • Formation of core group comprising employees from IPD [Investigation, Planning and Design Department], P&M [Project and Management Department] and Finance to compile plan	AM [Accounts Member]

No.	Required Action	Responsibility
6	Change Management Team • Appointment of core CMT comprising of one Deputy Chief Engineer and three Executive Engineers • One Deputy Chief Engineer / Executive Engineer (from Chief Engineer's office) to act as Regional Change Management Leaders in the 3 regions	MD [Managing Director] Regional CEs
7	Communication • The SEs [Superintendent Engineers] would organise communication Workshops periodically with the help of regional Change Management Leaders to cascade information regarding progress of Information Technology and Change Management initiatives. The change management team will act as facilitators	Regional SEs / Regional Change Management Leaders / Change Management Team

Appendix 6: Employee Questionnaire

The purpose of the questionnaire was to prioritise and rank improvement areas previously suggested by the Consultant and change management team.

Questionnaire Clarification Note

The ensuing paragraphs briefly outline an introduction to the change management initiative at KWA, elaboration of suggested improvement areas at KWA and a questionnaire to capture individual thoughts which would ultimately help in prioritising the improvement areas.

1.0 Change Management Initiative at KWA

Under the JBIC-assisted Kerala Water Supply Project (KWSP), 5 major water supply infrastructure schemes at an estimated cost of Rs.1752.45 Crores are under implementation. But there is also a component of "Institutional Strengthening" budgeted at Rs.35 Crores under KWSP. This component has been split into 2 distinct parts:

- Information Technology and Information Systems – Computerisation and networking of KWA offices. The pilot infrastructure would be tested at Trivandrum and slowly rolled across the length and breadth of the State. The operational software planned to be installed would encompass the following functional areas: Project Monitoring, Operation & Maintenance, Financial Accounting, Customer Complaints Redressal, Billing & Revenue, Procurement & Inventory Control, Human Resource Development, Management Information System, etc. Additional facilities available would be e-mail, internet and intranet, VOIP and a revamped KWA website. This translates to the fact that KWA is heading towards e-governance and better organisational practices. In order to make this transition smooth, all stakeholders of KWA need to be geared up so that effective use of this huge investment is achieved.

- Change Management Programme – The objective of this programme is to strengthen KWA so that:
  - The organisational efficiency improves
  - KWA can become self-sufficient in the intermediate to long-term
  - KWA is able to manage its resources better

A number of activities have already been completed with the help of the Project Consultant of KWSP, and these are briefly described below:

- A change management team consisting of 3 Executive Engineers has been formed to spearhead the programme.
- A KWA Organisation Review has been undertaken to map the current work practices at KWA. A number of positive recommendations have been made to improve the way the organisation presently works. To be precise 66 improvement areas have been suggested in the Review. The change management team is working on prioritising the improvement areas and moving ahead towards implementation.
- 2 workshops have been conducted to capture ideas and thoughts on the vision, mission, strategic aims, performance measures and targets, corporate plan, etc. of KWA. In fact Vision, Mission and 9 Strategic Aims have evolved out of these Workshops.
- A plan to communicate the changes that would evolve around KWA to the employees, unions, customers and community on a continuous basis has been worked out.
- A study has been planned to assess the current IT Skill set within the organisation.

2.0 Elaboration of Suggested Improvement Areas at KWA

The improvement areas have been detailed below:

1. Strategic Intent

- Framing a Vision / Mission Statement and Strategic Aims of KWA. This activity will provide business focus and a means by which all in the organisation can feel valued and have a common platform from which all can contribute towards business success

2. Institutional Arrangements

- Improved relation and coordination with Local Bodies for timely collection of water charges
- Strategic agreement with the Government of Kerala for commercial and operational autonomy of KWA
- Adopt a policy of Integrated Water Resource Management (IWRM)
- Planning to enforce regulation such as bye laws, replacement of meters, water conservation, hygiene measures, etc.
- Assigning 'ownership' for Community / NGO / User Group / Beneficiary Group coordination and cooperation to comply with 10th Plan and 74th Constitutional Amendments obligations

3. Corporate Management

- Preparation of a KWA Corporate Plan
- Prepare Corporate and Departmental Plans and set Corporate and Departmental Goals and agree key measures and action plans for continuous improvement
- Introduction of Quality Management System
- Introduction of system of corporate 'values and behaviours'

4. Process Management

- Transformation into a "Process Organisation". Let us take an example. Presently an Executive Engineer looks after Operation & Maintenance, Billing

& Revenue and Customer Services, etc. in his defined territory. In a "Process Organisation" there shall be different departments for different processes, as indicated below:

KWA Board	Operations	Asset Management	Customer
		Operations Management	
	Customer Services	Billing & Revenue Management	
		Complaint Redressal Management	
	Support Services	Corporate Management	
		HR & Training Management	
		IT & IS Management	
		Procurement Management	
		Financial Management	

5. Work Practices

- Codifying work practices, capturing best practices in accordance with an internal or internationally recognised Quality Management System
- Adopting teamwork and knowledge sharing

6. Management Practices

- Encouraging transparency within the organisation
- Establish a strong HRD and training capacity headed by professionals
- Building staff capacity / managerial competence to ensure that all staff have the appropriate 'tools' to do the job. This includes leadership, commercial acumen, systems / IT, customer services skills as well as technical skills, such as project management, O&M management, engineering skills, etc.

7. Resources

- Corporate Plan to encompass proper fund planning to meet present and increased water demand in future

- Liaison with Government Agencies to clear liabilities
- Efficient project management and strict financial control
- Agreeing on a revised tariff structure with Government of Kerala for full cost recovery
- Enforcing regulation / payment mechanisms to encourage water use efficiency
- Improving billing and revenue receipt
- Implementing water resource audits

8. Information Systems

- Implementation of IT Master Plan
- Speeding up the implementation of software packages such as the Financial Accounting System (FAS), Project Management Systems (PMS), Management Information System (MIS), Complaints Redressal System (CRS), Geographical Information System (GIS), etc. and necessary hardware / network systems

9. Communications

- Formulation, agreement and implementation of Internal / External Communications strategy
- Setting up customer and community public relations activities
- Introduction of customer surveys and feedback loop

10. Performance Management

- Defining Key Performance Indicators (KPI) for each organisation process / sub-process and ensure compliance
- Ensuring that information provided by the proposed MIS (Management Information System) is acted on to ensure continuous performance improvements
- Conducting internal and external benchmarking and ensure that processes are subject to continuous review to maximise performance

11. Asset Management

- Appointment of an Asset Manager as Process Owner
- Adoption of a methodology for Master Planning that links overall strategic direction with financial planning and timely project implementation
- Implementation of a computerised Asset Register for all above-and below-ground assets, and determine conditions of all assets. This will form input for asset plans to determine serviceability, life expectancy, OPEX and CAPEX considerations for asset maintenance or replacement
- Introduction of systems for process reviews and ensuring asset registers and asset histories are kept up-to-date
- Evaluation and implementation of outsourcing opportunities such as condition surveys, asset maintenance, refurbishments, replacements, etc.

12. Project Management

- Appointment of a 'process owner' for Projects Management and introduction of computerised systems to manage and control financial and physical aspects of all projects
- Ensuring that projects that do not meet all appropriate criteria are not set for implementation
- Reviewing each project that may now fall under the jurisdiction or projected plans of other implementing agencies such as Local Bodies, KRWSA, etc. Agreements should then be made with the relevant agency as appropriate to either handover schemes or eliminate schemes as necessary
- Evaluate outsourcing opportunities such as the use of EPC (Engineering, Procurement and Construction) contracts, as well as scheme investigation / feasibility studies, scheme design, tender documentation, contracts management, etc.

13. Financial Management

- Accounts Member to be appointed as 'process owner' and to take line responsibility for all financial matters including revenue, OPEX (operational expenditure) and CAPEX (capital expenditure)
- Ensure adequate computerised systems in place to deal with budgeting, financial control of OPEX and CAPEX, auditing, reporting, etc.
- Ensure staff are adequately trained and structure is in place to support financial control measures within the regions

14. O & M Management

- Appointing a process owner for Operations viz. "Head of Operations"
- Introduction of an O&M (operation and maintenance) strategy and system of 'planned / preventative maintenance' integrated with 'asset management / supply chain management'
- NRW / UFW reduction strategy
- Developing water and wastewater processes and introduction of continuous process reviews to ensure processes are optimised
- Implementation of adequate computer systems for asset management, and O&M that are integrated with other systems such as GIS, CIS, etc.
- Introduce systems for process reviews and Performance Management to maximise UFW reduction, energy and process chemicals efficiency, plant utilisation, etc.
- Evaluation and implementation of outsourcing opportunities such as leakage reduction programmes, meter replacement, leakage repair, operation and/or maintenance of assets, etc.

15. Customer Services & Public Relations Management

- Appointment of a process owner for Customer Services viz. "Head of Customer Services"

- Implementation of a Customer Services Strategy
- All 'customer facing' staff are adequately trained and have appropriate systems that present accurate up-to-date customer information
- Defining and assigning ownership to all customer processes such as billing / revenue collection, metering services, contact management, key accounts management, etc.
- Introducing community relations activities such as open days, schools liaison, road shows, customer literature, customer feedback, complaints analysis, customer surveys, etc.
- Evaluation and implementation of outsourcing opportunities such as bill printing, revenue collection, disconnections, debt collection / factoring, etc.

16. System Management

- Appointment of a process owner for Information Systems viz. "Head of IS"
- Building staff capacity for efficient running of a centralised IT unit
- Ensuring that new systems comply with investment criteria in line with overall Asset Acquisition Plans (Master Planning and Asset Planning)
- Investigating outsourcing opportunities such as systems design, systems implementation, systems maintenance and support, etc.

17. HRD & Training

- Introduction of HRD strategy and a new approach to HRD management by introducing system of Central and Business Unit HR set-up
- Developing and introducing an "Employee Handbook" that clearly defines responsibilities, terms and conditions of employment, values and behaviours, policies and procedures, etc.
- Introducing Performance Management System
- Implementation of a new approach to succession planning and labour relations

- Evaluation and implementation of outsourcing opportunities such as training / training facilities, payroll services, etc.

18. HS & Welfare Management

- Appointment of a process owner for health, safety and welfare such as "HS&W Manager"
- Conducting Health Safety and Security Audits and ensuring that all operational and commercial sites are upgraded to meet current legislation
- Ensuring all staff are adequately trained in H&S matters related to operations, especially use of chlorine gas and working on the highways
- Ensuring staff are issued with personal protective equipment (PPE) as appropriate and trained in their proper use

The principle task is to prioritise (i.e. which improvement programme would be taken up first) and implement the improvement areas.

In doing this task a questionnaire (see below) was framed to capture individual thoughts.

QUESTIONNAIRE

For each improvement area a matrix has been created. Let us assume that if a particular improvement area is implemented, then it can bring about changes in terms of attributes listed in the first column of each matrix. Your response may be "very strongly agree / strongly agree / agree / disagree / strongly disagree / very strongly disagree" to a particular attribute. Please tick (✓) in the relevant cell based on your opinion.

Implementation of **STRATEGIC INTENT** will:	Very Strongly Agree	Strongly Agree	Agree	Disagree	Strongly Disagree	Very Strongly Disagree
• lead to better customer care and support						
• improve service level and reliability						
• improve water quality						
• make water tariff affordable						
• improve transparency to customers and community						
• lead to reduction in O&M costs						
• lead to reduction in administrative costs						
• lead to reduction in capital costs						
• lead to timely execution of projects						
• improve public image and credibility						
• improve efficiency and accountability						
• improve transparency within the organisation						
• create better work environment						
• lead to better and easier work practices						
• increase scope of professional development and growth						
• lead to improvement in employee relations and promote teamwork						
• lead to acknowledgement of one's performance						
• lead to proper grievance redressal and settlement						
• get full support from employees						
• get full support from unions and other stakeholders						
• get full support from Government						

It is not obligatory to disclose your personal information.

Respondent Name: _____

Respondent Designation: _____

Office Address: _____

Telephone/Mobile Number/email: _____

(Note: by way of example, I have only shown the first of the 18 matrices (one for each of the improvement areas described above) to illustrate the 18 sheets of the questionnaire used in practice).

Appendix 7: Prioritisation of Improvement Areas Based on Questionnaire Feedback

Respondent ID (ID's removed)	Respondent Name (Names removed)	Asset Management	Communications	Corporate Management	Customer Services & Public Relations Mgt.
		80	73	70	68
		74	54	62	61
		67	51	50	58
		9	20	23	32
		48	48	48	48
		51	40	70	48
		68	70	58	67
		73	62	73	76
		2	23	13	18
		8	25	57	11
		76	67	67	66
		73	61	84	71
		67	69	72	68
		73	68	61	82
		66	70	62	74
		70	69	61	61
		15	12	6	9
		37	35	40	43
		73	73	70	80
		78	51	68	56
		66	66	65	54

Respondent ID (ID's removed)	Respondent Name (Names removed)	Asset Management	Communications	Corporate Management	Customer Services & Public Relations Mgt.
		66	45	64	63
		68	57	62	55
		84	39	11	61
		54	52	54	50
		63	63	63	63
OVERALL AVERAGE		**58.04**	**52.42**	**55.15**	**55.50**
RANK		**15**	**5**	**11**	**13**

Respondent ID (ID's removed)	Respondent Name (Names removed)	Financial Management	HRD & Training	HS & Welfare Management	Information Systems
		75	74	77	73
		60	49	68	42
		58	67	75	42
		25	7	15	19
		48	48	48	48
		47	47	50	55
		66	64	72	70
		73	70	80	62
		14	18	6	45
		30	45	11	57
		66	64	69	68
		72	50	63	59

Respondent ID (ID's removed)	Respondent Name (Names removed)	Financial Management	HRD & Training	HS & Welfare Management	Information Systems
		69	70	69	69
		66	60	66	63
		64	58	72	54
		66	57	68	68
		9	15	12	27
		68	51	50	31
		91	73	80	59
		51	45	63	33
		66	63	64	68
		63	63	63	47
		53	58	58	41
		21	63	68	27
		47	63	40	42
		63	63	63	63
OVERALL AVERAGE		**55.04**	**54.04**	**56.54**	**51.23**
RANK		**10**	**8**	**14**	**1**

Respondent ID (ID's removed)	Respondent Name (Names removed)	Institutional Arrangements	Management Practices	O&M Management	Performance Management
		77	65	63	73
		61	60	55	58
		68	39	59	41
		15	45	36	23
		49	48	48	48
		71	53	44	43
		72	55	66	57
		72	67	74	66
		60	33	26	38
		33	36	14	13
		68	64	60	68
		87	62	55	63
		72	67	68	67
		71	66	68	67
		60	62	74	60
		63	64	46	65
		9	12	6	6
		68	37	48	43
		69	68	75	62
		72	26	40	35
		63	59	61	57
		68	53	63	68
		61	63	57	66

Respondent ID (ID's removed)	Respondent Name (Names removed)	Institutional Arrangements	Management Practices	O&M Management	Performance Management
		4	21	45	63
		76	57	48	45
		63	63	63	63
OVERALL AVERAGE		**59.69**	**51.73**	**52.38**	**52.23**
RANK		**17**	**2**	**4**	**3**

Respondent ID (ID's removed)	Respondent Name (Names removed)	Process Management	Project Management	Resources	Strategic Intent
		77	74	73	79
		97	64	55	39
		51	48	51	52
		45	36	50	70
		48	48	48	49
		61	50	52	70
		58	61	66	64
		73	73	78	62
		56	8	12	59
		34	4	51	22
		68	69	61	66
		67	62	67	71
		67	67	69	72
		74	67	69	62

Respondent ID (ID's removed)	Respondent Name (Names removed)	Process Management	Project Management	Resources	Strategic Intent
		67	62	76	51
		66	69	63	69
		27	12	15	4
		44	57	43	68
		58	62	58	51
		54	47	66	21
		59	52	77	64
		65	63	46	70
		69	57	49	61
		2	49	21	4
		63	63	42	72
		63	63	63	63
OVERALL AVERAGE		**58.19**	**53.35**	**54.65**	**55.19**
RANK		**16**	**7**	**9**	**12**

Respondent ID (ID's removed)	Respondent Name (Names removed)	System Management	Work Practices
		78	68
		67	56
		67	48
		12	41
		48	48

Respondent ID (ID's removed)	Respondent Name (Names removed)	System Management	Work Practices
		58	51
		69	58
		78	71
		27	45
		20	25
		68	72
		105	61
		69	67
		63	75
		69	54
		65	64
		21	9
		53	29
		84	68
		43	55
		66	59
		63	48
		62	63
		84	4
		51	67
		63	63
OVERALL AVERAGE		**59.73**	**52.65**
RANK		**18**	**6**

Appendix 8: Employee Suggestions Categorised by Improvement Area

Improvement Area	Specific Improvement Area Identified by the Organisation Review	Employee Feedback/Suggestions	Union Feedback/Suggestions
Strategic Intent	▪ Vision, mission and strategic intent of KWA	–	–
Institutional Arrangements	▪ Timely collection of water charges from local bodies/government agencies ▪ Integrated water resource management (IWRM) ▪ 10th Plan and 73rd / 74th constitutional amendment obligations	▪ Adjustment of water charges and capital cost when water supply schemes are transferred to local bodies ▪ KWA may not hand over schemes to local bodies ▪ Mini-and micro-water supply schemes may be handed over to the beneficiary groups, KWA to provide advisory role ▪ Formation of Metro Water Services as separate profit centres for the 5 municipal corporations	
Corporate Management	▪ Corporate Plan ▪ Goal for department/employees ▪ Quality management system	–	▪ KWA may not transform into a profit-oriented corporate body
Process Management	▪ KWA slowly transforms into a "Process Organisation" where each process like project management, operations & maintenance, billing & revenue, customer services, corporate management, human resource development (HRD) & training etc. would be headed by an independent account head	▪ Separation of projects and O&M from division level and below ▪ Workforce assessment study in all offices ▪ Separation and independence of water quality unit ▪ Strengthening of Investigation, Planning and Development Department (IPD) as centre of excellence ▪ Planning, design and monitoring cell in each office ▪ All engineering works to be monitored by Technical Member ▪ Dismantling of ineffective project offices ▪ Relocation of employees from Managing Director / Chief Engineer's offices to field activities	▪ Work load assessment study in all offices ▪ Strengthening of IPD ▪ Excess staff in higher offices deployed for field activities ▪ Utilisation of services of last grade employee for billing and revenue collection, surveyors for asset management

Improvement Area	Specific Improvement Area Identified by the Organisation Review	Employee Feedback/Suggestions	Union Feedback/Suggestions
Work Practices	▪ Codifying work practices ▪ Adopting team work/knowledge sharing	▪ Simplification of KWA rules and regulations; procedures related to tendering and execution of works ▪ Engineers to work in accordance to Public Works Department (PWD) and finance codes ▪ Necessity to modify the water supply regulations ▪ Building internal discipline and morale of employees ▪ Making employees responsible and accountable ▪ Total quality management	–
Management Practices	▪ Encourage transparency ▪ Strong HRD and training function so that all staff have appropriate skill to perform their jobs	–	–
Resources	▪ Water resources audit ▪ Billing and revenue performance ▪ Water use efficiency ▪ Efficient project management and strict financial control ▪ Revision in tariff	▪ Water tariff: ▪ Annual tariff revision ▪ Cross subsidy ▪ Formation of state level 'Water Tariff Regulatory Committee' ▪ Minimum quantity provided free of cost and balance consumption charged at appropriate rate ▪ Tariff based on plinth area or number of family members	–

Improvement Area	Specific Improvement Area Identified by the Organisation Review	Employee Feedback/Suggestions	Union Feedback/Suggestions
Information Systems	▪ Implementation of information technology (IT) Master Plan ▪ Implementation of software packages like Financial Accounting System (FAS), Project Management System (PMS), Management Information system (MIS), Complaints Redressal System (CRS), Geographical Information System (GIS), etc. and necessary hardware/network systems	▪ Implementation of KWA wide computerisation programme ▪ Computerisation of meter reading, billing and revenue collection ▪ Registering all customers on customer database ▪ Online payment to suppliers and contractors ▪ Install company-wide email system	–
Communications	▪ External and internal communications strategy ▪ Customer and community public relations activities ▪ Customer surveys and feedback loop	–	–
Performance Management	▪ Key performance indicators (KPI) ▪ Use of Management Information System to ensure continuous performance improvements ▪ Internal and external benchmarking	–	▪ Transparency and benchmarking performance between regional offices

Improvement Area	Specific Improvement Area Identified by the Organisation Review	Employee Feedback/Suggestions	Union Feedback/Suggestions
Asset Management	▪ An Asset Manager as process owner ▪ Adoption of a methodology for master planning ▪ Computerised asset registers ▪ Systems for process reviews and up-to-date asset registers and asset histories	–	–

Projects Management	▪ A process owner for projects management
	▪ Computerised Project Management System
	▪ Reviewing each project that may now fall under the jurisdiction or projected plans of other implementing agencies such as Local Bodies, KRWSA, etc. to avoid duplication
		▪ An assessment may be done regarding number of schemes:
		  ▪ In operation and execution
		  ▪ Under execution to be commissioned within 5 years
		▪ Execution of project after necessary land acquisition
		▪ An officer should work in a project for at least 3 years without being transferred
			–

Financial Management	▪ A process owner for financial management ▪ Computerised financial accounting system	–	–

Improvement Area	Specific Improvement Area Identified by the Organisation Review	Employee Feedback/Suggestions	Union Feedback/Suggestions
O&M Management	▪ A process owner for operations viz. "Head of Operations" ▪ Planned/preventative maintenance ▪ Non-revenue water / unaccounted for water (NRW/UFW) reduction strategy ▪ Computerised system for asset management and operation & maintenance (O&M) ▪ Introduce systems for process reviews and performance management to maximise UFW reduction, energy and process chemicals efficiency, plant utilisation, etc.	▪ Procurement of bulk items through 'Annual Rate Contract' ▪ Adopting a strategy of preventative maintenance ▪ Wastage of chemicals may be ascertained by testing quality of treated water ▪ Chlorinators may be used for disinfection of water ▪ The existing laboratories of treatment plants may be made active by posting requisite manpower. Their services can also be extended to nearby rural water supply schemes ▪ Energy audit group may be formed for implementing efficient energy consumption measures	▪ Materials management and inventory control may be done professionally to save resources
Customer Services & Public Relations Management	▪ A process owner for customer services, viz. "Head of Customer Services" ▪ All 'Customer Facing' Staff are adequately trained for enhanced customer satisfaction ▪ Community relations activities	▪ Weekly only one day may be spent for hearing the grievances and complaints of the consumer. The concerned Assistant Executive Engineer (AEE), Assistant engineer (AE) and Meter Readers may be present ▪ Consumer grievance redressal cell may be established at division or section level ▪ Programme may be organised to increase awareness on value and proper use of drinking water amongst general public ▪ The public relations office needs to be strengthened	–
Systems Management	▪ Process owner for information systems, viz. "Head of IS" ▪ Building staff capacity for efficient running of a centralised IT unit	–	–

Improvement Area	Specific Improvement Area Identified by the Organisation Review	Employee Feedback/Suggestions	Union Feedback/Suggestions
HRD and Training	▪ Central and regional HRD unit ▪ Introducing an "Employee Handbook" ▪ Introducing Performance Management System ▪ Proper succession planning (promotions on merit, no erratic transfers etc.) and labour relations	▪ General management and leadership training programme ▪ 3-month compulsory induction training for new appointees ▪ Specialised training for customer-facing staff and draftsmen ▪ Training for developing communication skills of employees ▪ Reward and punishment based on performance evaluation ▪ Incentives for motivating employees ▪ Employees made accountable by setting targets and evaluating performance	▪ Strengthening of HRD function by appropriate training of internal human resources ▪ IT implementation may be supported by appropriate training of KWA staff from reputed institutes
Health, Safety & Welfare Management	▪ A process owner for health, safety and welfare ▪ Conducting health, safety and security audits ▪ Ensuring all staff are adequately trained in health & safety (H&S) matters related to operations, especially use of chlorine gas, working in deep trenches, highways, etc. ▪ Ensuring staff are issued with personal protective equipment (PPE) as appropriate and trained in their proper use	–	▪ Health, safety and welfare of staff may be taken care of by providing Group Medical Insurance ▪ Computerised Employee Information System (EIS) for staff welfare
Diversification	–	▪ KWA may diversify into PVC Pipe / Water Meter / Bottled Water ▪ KWA may think of supplying bulk water to large customers such as the international container terminal	

Improvement Area	Specific Improvement Area Identified by the Organisation Review	Employee Feedback/Suggestions	Union Feedback/Suggestions
Metering, Billing and Revenue Collection	–	▪ 'Revenue Monitoring Task Force' at circle and division level ▪ Bi-monthly meter reading, and bills issued regularly ▪ Revenue collection works to be monitored by Accounts Member (AM) ▪ Establishment staff be relocated for improving revenue collection ▪ More collection centres in rural areas using existing staff ▪ Proper monitoring of non-domestic meters ▪ Anti-theft squads should to be formed with adequate staff	–
Others	–	–	▪ Outsourcing in principle is not acceptable

Appendix 9: Feedback from Communication Workshops

Communication Workshops were held at Kozhikode, Trivandrum and Kochi. The table below provides a record of feedback and suggestions, categorised by the 9 Strategic Aims agreed at the workshops. A total of 257 comments and suggestions were recorded. This highlights the enthusiasm for change, and the value of communications in terms of seeking opinions and suggestions from staff who would not normally be consulted in this way. This feedback proved invaluable to the organisation, and especially the change management team, who were tasked with effecting improvements through discussion and involvement of the wider employee base.

Employee Name (Name removed)	Feedback and Suggestions
	MEET OUR STATUTORY OBLIGATIONS
	Modification of water supply regulations according to the new political, economic and social scenario.
	To supply sufficient quantity of good quality water to consumers.
	OPERATE AS A FINANCIALLY INDEPENDENT AND AUTONOMOUS BODY
	Water needs to be supplied at subsidised rate to certain tribal and economically backward communities. So instead of uniform tariff, cross subsidy should be introduced i.e. water tariff should be a function of economic affluence of the areas being serviced and the subsidy in one scheme should be realised from higher income in another scheme.
	Every year there should be a nominal increase in water charges which is affordable to the middle class community. We can safely assume that poor people would mostly source from street taps.
	Water charges should be increased to recover production and O&M costs.
	Water tariff should be revised based on plinth area of residence or number of family members. No metering is necessary.
	A system of annual tariff revision may be established.
	"Provide Free Drinking To All" as per the following rationale: Assuming that we provide 6 litres / person / day for drinking and cooking, then the demand / family / day (average family size of 5 persons) works out to 30 litres., The demand / family / month works out to (30 × 30) or 900 litres ≈ 1,000 litre. The balance consumption may be charged at Rs. 10 or above / 1,000 litre.
	Policy should be formulated considering separate water tariff for urban and rural areas.
	Water tariff should be fixed at a subsidised rate for lower income group. Poor people should be provided with free house connection by local bodies and street taps should be eliminated in a phased manner.

Employee Name (Name removed)	Feedback and Suggestions
	Water tariff must be raised in such a way that at least operation and maintenance costs can be recovered.
	The tariff structure for domestic category may be fixed as per the following rationale: The minimum requirement of 10,000 l/month may be charged at the present tariff, Beyond that, tariff may be drastically increased. This will promote water use efficiency and moreover the middle class would be able to afford the increased tariff.
	For non-domestic category 10–25% increase in water tariff can be made.
	Water charges should be increased according to production cost.
	Water charges may be linked to quality of water and level of customer services. Periodic revision of tariff based on O&M charges may be adopted.
	To revise water charges rationally. To collect higher charges for higher consumption to promote water use efficiency.
	Water charges should be increased according to production costs.
	Water tariff was supposed to be increased yearly after 1999. A tariff regulatory committee has to be formed for this purpose.
	An assessment of total number of schemes in operation and execution is required segregated by: 1. Panchayat, block and district 2. Domestic, non-domestic and industrial connection
	Number of projects under execution that can be commissioned within 5 years should be identified.
	Faster, effective and efficient decision-making mechanisms should be evolved, which would facilitate time-bound completion of projects.
	Simplification of KWA rules and regulations.
	The existing codes and manuals may be revised for accommodating easy and quick procedures in tendering and execution of works and successful commissioning of water supply schemes within the shortest possible time period.
	Rules and procedures in division office should be simplified.
	Engineers should work in accordance to PWD / Finance codes.
	The outdated rules and regulations should be changed for positive developments.
	Adjusting the water charges and capital cost when water supply schemes are transferred to local bodies.
	Mini-and micro-water supply schemes should be handed over to the beneficiary groups for operation and maintenance. Role of KWA should be limited to advisory services.
	KWA should not hand over schemes to local bodies. Instead the schemes should be rehabilitated, improved and maintained by KWA.
	Making KWA autonomous by giving true autonomy and delegation of powers.

Employee Name (Name removed)	Feedback and Suggestions
	Most pipes are laid through either PWD roads or roads maintained by municipal authorities. While improvements of roads are undertaken, large amounts are being spent for dismantling and relaying of pipes. These can be avoided if necessary land acquisition is being done at least for pumping machines.
IMPROVE COMMERCIAL AND OPERATIONAL PRACTICES	
	There is an urgent need to maximise efforts towards improving revenue collection.
	A 'Task Force' has to be formed in each division to monitor revenue collection.
	Efforts may be made to minimise revenue expenditure.
	Taking meter reading bimonthly and issuing bills regularly.
	The revenue collection works should be monitored by Accounts Member.
	In order to improve organisational efficiency of KWA, due attention needs to be paid towards revenue collection. For improving revenue collection computerisation of all offices is necessary.
	Presently KWA is not in a position to provide the consumer with his details of payments and dues. Meter reading is not being done periodically and not recorded as well. This problem can be solved by providing sufficient staff for revenue collection centres and proper supervision and control.
	Revenue collection can be improved by proper meter reading and timely billing.
	Meter readers should be motivated to do their job properly for existence of KWA.
	Full computerisation of revenue collection, billing and meter reading is required. Monitoring the meter reading through computerised data and identifying meters which are not read.
	Immediate action plans to be formulated to decrease expenses and improve revenues.
	For improving revenues the following measures need to be taken: 1. Meter reading should be taken properly 2. Bills should be issued in time 3. Water charges may be revised rationally 4. Stringent actions should be taken against defaulting customers 5. For improving efficiency of revenue collection, cooperation of meter readers, meter inspectors, assistant engineers and other billing staff are compulsory. For getting better services from these employees, the competent authorities should sincerely address their grievances immediately
	Revenue and quality monitoring wing needs to be strengthened.
	Awareness programme needs to be undertaken amongst the staff regarding the importance of generating income for the existence of the organisation.

Employee Name (Name removed)	Feedback and Suggestions
	A committee has to be constituted at Superintending Engineer (SE) level to formulate strategy and review activities related to: 1. Improving revenue generation 2. Solving problems related to non-working meters 3. Collecting large pending arrears 4. Improving meter reading performance 5. Quality of meter installed in customer premises
	Periodic review meetings may be organised to assess progress of works and revenue collection.
	For revenue collection, efficient staff should be posted.
	Establishment staff should be relocated for strengthening revenue collection drive at KWA.
	To improve the revenue in rural areas more collection centres may be opened using the existing establishments.
	Sufficient staff are required at sub-division level for taking meter reading, issuing arrear bill and collecting cash.
	Rationalisation with regard to billing and collection is required. The proposal to collect water charges on a fixed slab basis in the case of rural domestic consumers should be implemented instead of outsourcing. The available staff and administrative machinery may be utilised for billing and revenue in the urban sector and for non-domestic consumers.
	The major areas which require immediate attention are: 1. Expenditure reduction 2. Transmission losses 3. Revenue collection
	There is no monitoring of non-domestic meters.
	Surprise inspection may be conducted at site.
	Anti-theft squads should be formed with adequate staff. At least three squads need to be formed equipped with a jeep and driver headed by the following staff: AEE, AE and Overseer. Squads should be shifted to different zones once in 6 months. They should inspect all the water supply schemes and verify industrial, non-domestic and domestic connections randomly.
	Anti-theft squad teams should be formed in each revenue sub-division.
	Water quality unit should be independent from production unit to eliminate biased reporting. Water quality unit should be under a separate chief engineer and not under territorial chief engineer to maintain independence and vigilance warranted in quality of water.
	A large number of technical and non-technical officers are posted in the office of MD and Chief Engineers. Because of this any decision or estimate prepared by operational officers is actually checked by lower level staff in MD's and CE's offices. This is simply wastage of time and resources. To be more precise higher officers should be posted in MDs and CE's offices. Some staff in MD's and CE's offices should act as support, and other staff should be relocated as field staff to improve performance of schemes.
	Frequent transfers of officers in charge of projects without any specific reason adversely affect the progress of on-going projects. An officer should work in a project for at least 3 years.

Employee Name (Name removed)	Feedback and Suggestions
	Investigation, planning and design work of new schemes must be done through a separate wing and it should be strengthened with qualified specialised technocrats. It should not be a dumping place for accommodating inefficient incumbents.
	The concept of "Total Quality" needs to be developed within KWA.
	Sufficient surveillance is needed to keep track of competition in water supply sector
	Centralised rate contract arrangement for procurement of pipes may be finalised from headquarters. This will help implementing offices in procuring necessary quantity of pipes at times of crisis and disaster without waiting to complete procurement formalities. This procurement system is practiced in Andhra Pradesh. The total expected quantity may be divided amongst manufacturers as per capacity so that supply delays may be minimised, if not eliminated fully.
	KWA may diversify into bottled water business.
FOCUS ON CUSTOMER SERVICES	
	Consumer grievances are to be attended on a war footing basis. Consumer has the right to: 1. Prior intimation regarding time period of disruption of supply in case of repair / maintenance works or otherwise 2. Transparent billing systems i.e. even an ordinary consumer should understand his consumption level, unit rate, amount due, amount to be remitted, etc.
	Every week one day to be spent for hearing the grievances and complaints of the consumer. The concerned AEE, AE and meter readers should be present. Consumers should not be permitted to present their grievance on any other day.
	AEE / AE should provide reply to consumers about their complaint timely.
	Consumer grievance redressal unit should be established at section level and properly trained technical and ministerial staff should be posted capable of taking immediate positive measures.
	A prospective customer should visit KWA office only once to get a new connection. All fees and charges should be collected from the customer on his first visit. If for technical or other reasons, KWA fail to provide new connection within reasonable time (may be a fortnight), the money would be refunded to the customer with due apology.
	KWA system cannot be improved by creating higher posts. However, to boost image, consumer grievances should be addressed for which deploying and increasing lower level staff in certain areas is needed.
	Consumer grievance redressal cell at division level needs to be created.
	Create awareness on value and proper use of drinking water among public.
	Maintaining healthy public relations.
	Public relations office needs to be strengthened.

Employee Name (Name removed)	Feedback and Suggestions
	At present only the negative aspects of KWA are getting wide publicity. A more detailed scenario should be projected to public regarding what KWA is supposed to do, what the organisation has already achieved, and what it proposes to achieve in the future. This translated to the fact that a strong customer relation programme needs to be implemented.
	There exists a wide gap between the organisation and its consumers, which needs to be bridged.
	Even though the supply is less than wanted, by continuous communication with the public, we can convince them regarding the hurdles / difficulties faced by KWA.
	Consumer contacts need to be increased. Customer facing staff need to be friendlier.
	In rural areas, training to public and consumers should be arranged.
	KWA's work culture should not be detrimental to the welfare of the general public.
	Customer facing staff to be trained so that KWA's image to customers and public can be improved.
	The staff should always have a feeling that the "consumers are their masters".
	AE, draftsman and meter readers should be trained properly so that they can communicate properly with consumers.
	The operational staff viz. meter readers, inspectors, overseers, revenue clerks, etc. should be made aware of the importance of their services to improve revenue, and also become customer friendly.
	All officers should develop a good positive approach which should be beneficial for KWA and its customers and not work for any vested interest beneficial to external agencies, firms or individuals.
	For ensuring quality of drinking water, the existing laboratories of treatment plants should be made active by posting requisite manpower. Their services can also be extended to nearby rural water supply schemes.
	By providing prompt services to the consumer, revenue collection can be increased considerably as most of the consumers are ready to pay.
RESTRUCTURE KWA TO BECOME A "PROCESS ORGANISATION"	
	O&M and project division should be separated.
	Each division should be bifurcated into projects and maintenance division. Project division may be centralised at district level.
	Project and O&M should be centralised at EE level and decentralised below that level.
	Separation of projects and maintenance works for speedy implementation of projects.
	Setting up a project sub-division under each division is an appreciable measure.
	There should be separate division for Projects and O&M.
	Project and maintenance works may be bifurcated to avoid time and cost overrun which in turn will rebuild KWA's credibility.

Employee Name (Name removed)	Feedback and Suggestions
	KWA engineers have long been demanding the segregation of the maintenance and projects wing. But no development in this regard has happened.
	Total restructuring is required at Panchayat, block, district, region and state level offices of KWA.
	Deploying employees for equitable distribution and efficient working.
	Staff strength in all offices should be assessed and revised in accordance to actual requirements.
	Administrative staff should be rationally distributed in all offices after detailed study and assessment.
	There is an imbalance in staff strength in different offices which may be balanced by redistribution and transfer.
	Effectively restructuring the present organisation is necessary.
	There are many project offices which are still operating in spite of the fact that the schemes entrusted with them have been commissioned. These offices should be restructured with minimal required staff strength for operating and maintaining the schemes constructed by them.
	Change management is essential at KWA. As per the work load, the staff pattern of each section, sub-division, circle and regional offices are to be reviewed and changed.
	Staff strength of each office may be reviewed for improving employee utilisation.
	Establishment staff should be relocated for strengthening revenue collection drive at KWA.
	Sufficient staff is required at sub-division level for taking meter reading, issuing arrear bill and collecting cash.
	As per the work load, the staff pattern of each section, sub-division, circle and regional offices are to be reviewed and changed.
	Staff strength should be reviewed according to actual requirements.
	To estimate UFW scheme-wise for which leak detection units should be attached to WQS (Water Quality Surveillance) units. The present WQC (Water Quality Control) unit should be re-designated as WQS unit. Water quality surveillance activity should be a part of production unit.
	The present IPD wing should be equipped to handle R&D, IEC, consultancy services.
	The IPD wing may be restructured as a "State Level Consultancy Centre" in order to utilise KWA's experience and expertise in this field.
	A strong design wing should be there in the organisation.
	Planning, design and monitoring cell may be created in each office for speedy implementation of projects.
	The design units at regional Chief Engineer offices should be strengthened.
	All engineering works should be monitored by the Technical Member. The field officers should also be made accountable for execution.
	To improve the revenue in rural areas more collection centres may be opened using the existing establishments.

Employee Name (Name removed)	Feedback and Suggestions
	Formation of Metro WSS as separate profit centres for the 5 municipal corporations.
	Maintaining each water supply scheme as separate "Profit Centre".
	Mini-and micro-water supply schemes should be handed over to the beneficiary groups for operation and maintenance. Role of KWA should be limited to advisory services.
	KWA should not hand over schemes to local bodies. Instead the schemes should be rehabilitated, improved and maintained by KWA.
	A SWOT analysis of KWA is needed.
	Decentralisation of power for fostering quick decision making.
	Senior officers should inspect their subordinate offices.
	A change in approach of senior management is absolutely essential at KWA.
	Restructuring KWA should not pave way to privatisation.
	There may be vast protest from staff and trade unions if outsourcing is promoted.
	INVEST IN DEVELOPING OUR EMPLOYEES
	Building internal discipline and boosting morale among employees.
	Maintaining punctuality of all employees.
	Staff should be more punctual in attending office and more sincere in performing designated jobs.
	The staff should always have a feeling that the "consumers are their masters".
	All employees at every level should be made accountable and responsible.
	The first and foremost necessity to improve the organisation is that each and every employee should have a self-motive to change the present work culture.
	An attitudinal change of employees is needed.
	Elimination of corruption and attitudinal change of employees is most important for bright future of KWA.
	The attitude of "Build–Neglect–Rebuild" has to be changed.
	KWA staff need to change their attitude and outlook. Staff need to be more committed and provide quality input to the organisation.
	A change in approach of senior management is absolutely essential at KWA.
	Each employee should try and contribute maximum so that the required quantity of water at specified quality can be supplied to all consumers.
	Developing and improving communication skills of employees.
	Providing general management and leadership training for developing managerial skills of engineers and senior administrative staff.
	Providing adequate general managerial skill development training to engineers and senior administrative officers.
	Arranging training for development of employees.
	AE, draftsman and meter readers should be trained properly so that they can communicate properly with consumers.

Employee Name (Name removed)	Feedback and Suggestions
	Training should be imparted to all staff for increasing their technical knowledge and general management skills. All employees should be made aware of their lack of commitment towards the organisation.
	More employee Workshops need to be conducted for increasing staff awareness.
	Seminars / Workshops may be conducted periodically.
	Three-month compulsory induction training may be given to newly appointed employees.
	All employees need to be trained according to the nature of work they are supposed to perform.
	Up to the level of assistant engineers, induction training is provided. But this system should be extended for all personnel joining KWA so that they are thorough with their work, duties and responsibilities.
	Training should be imparted to draftsmen of all offices, thus enabling them to prepare realistic and accurate estimates of civil works.
	Awareness programme needs to be undertaken amongst the staff regarding the importance of generating income for the existence of the organisation.
	The operational staff viz. meter readers, inspectors, overseers, and revenue clerks etc. should be made aware of the importance of their services to improve revenue and also become customer friendly.
	Creating awareness among field staff (operators and overseers) on water quality especially in the wake of "Right to Information Act".
	The working level in KWA (like overseers, operators and ministerial staff) should be appraised of the real organisational scenario. At present these category of staff seems to be least bothered about the wellbeing of the organisation.
	Customer-facing staff to be trained so that KWA's image to customers and public can be improved.
	Implementing a system of reward and punishment based on performance evaluation.
	In the present system poor performance cannot be punished due to political interference. Hence promotion should be based on efficiency and performance of each individual.
	The performance of employees should be assessed. Best performance should be rewarded and worst performance punished.
	Promotion tests have to be conducted for engineers other than Kerala Service Rule Account tests. There are many inefficient engineers at KWA. This situation can be avoided if adequate technical tests are conducted before an engineer is promoted to a higher level.
	Providing incentives for motivating employees.
	Considering the rights and grievances of employees favourably.
	There should be due 'weight' for qualification in promotion and wages as Supreme Court has given verdict that "equal pay for equal work".
	For revenue collection, efficient staff should be posted.
	The norms for transfers and postings should be strictly followed so that corruption can be reduced to a great extent and there would be feeling of transparency in the activities of management.

Employee Name (Name removed)	Feedback and Suggestions
	Every employee should be made accountable; targets should be set and performance evaluated. Inefficient and negligent officers should be identified.
	Sufficient staff may be allotted to offices where there is a heavy work load viz. meter readers.
	At KWA there is unequal distribution of workload.
	A large number of technical and non-technical officers are posted in the office of MD and Chief Engineers. Because of this any decision or estimate prepared by operational officers are actually checked by lower level staff in MDs and CE's offices. This is simply wastage of time and resources. To be more precise higher officers should be posted in MDs and CE's offices. Some staff in MDs and CE's offices should act as support and other staffs should be relocated as field staff to improve performance of schemes.
	Equitable work load distribution is required to achieve more efficiency and control over business activities.
	The transfer of all employees should be done periodically. This is now being done on case by case basis.
	Frequent transfers of officers in charge of projects without any specific reason adversely affect the progress of on-going projects. An officer should work in a project for at least 3 years.
	All staff may be posted by rotation in revenue units.
	Investigation, planning and design work of new schemes must be done through a separate wing and it should be strengthened with qualified specialised technocrats. It should not be a dumping place for accommodating inefficient incumbents.
	The critical element in any water supply scheme is the pumping station. At KWA this is being manned by temporary operators and provisional employees. These operators should be recruited through Public Service Commission route.
	The top management may be staffed with personnel having both technical and management qualification and experience.
	Strict action should be taken against employees for negligence of duties PWD account code has to be amended To foster quick decision-making, number of levels should be reduced i.e. slowly migrating to a flat organisation
	Proper guidance from senior officers based on current rules and regulations.
	Senior officers should pay due attention to time management.
	The EE's get minimal time for office work due to work load. This quite often is leading to delays and also affects the quality of work. Hence rational distribution of staff based on workload has to be made.
	Periodic file clearance Workshop needs to be conducted along with regular monitoring and review.
PLAN, INVEST IN AND MAINTAIN ASSETS	
	Proper estimate to be prepared only after thorough investigation.
	Estimates should be realistic in order to avoid delay in project implementation stage when situation warrants preparing revised estimates.

Employee Name (Name removed)	Feedback and Suggestions
	While requesting to submit proposals for new schemes under any category, the following details required to be submitted along with the proposal should be specified by higher authorities: 1. The conditions or pre-requisites for the scheme to fall in the specific category 2. Any limit on the estimate amount of the proposed scheme
	To develop a strategy of periodic repair and maintenance.
	Electrical equipment repair has to be rationalised and uniform rates adopted.
	There should be a post of Electrical Engineer in all divisions to attend to maintenance of electrical equipment as well as supervision of new installations.
	Most of the intake works in the rural areas are in dilapidated condition. Immediate repair and improvement measures are to be undertaken to distribute good quality water.
	Implementation of schemes should be time-bound. All decision pertaining to efficient execution of projects should be taken at higher levels and it is to be cascaded to lower levels.
	All projects should be completed within the planned timeframe.
	Proper approval should be given by appropriate authority for timely execution of projects.
	Budget should be in accordance with time schedule of completion, Strict adherence to time deadlines, Before embarking on a project, sustainability has to be analysed from revenue point of view, Timely distribution of budget as per phase-wise implementation schedule
	Ensuring proper fund availability for timely completion of projects.
	Ensuring proper water quality at consumer taps.
	Maintaining proper quality and providing adequate quantity of water to consumers.
	Creating right atmosphere to exercise real time control over subordinates.
	Periodic review meetings may be organised to assess progress of work and revenue collection.
	Involvement of senior engineers in project implementation is effective.
	A large proportion of schemes operated by KWA are not financially viable. KWA senior management needs to project this scenario to the Government and get the requisite subsidy in order to make the organisation more stable.
OPERATE ALL OUR ASSETS EFFICIENTLY	
	Effective O&M and quality standards should be maintained. Quality monitoring unit needs to be introduced at division level.
	Water quality unit should be independent from production unit to eliminate biased reporting. Water quality unit should be under a separate chief engineer and not under territorial chief engineer to maintain independence and vigilance warranted in quality of water.
	Energy audit group should be formed for implementing effective and efficient energy consumption measures.
	Proper documentation of all water supply schemes needs to be maintained.

Employee Name (Name removed)	Feedback and Suggestions
	Proper documentation is not kept for operational schemes. Sometimes newly-posted officers have to spend a lot of time studying the existing schemes and their drawbacks. In order to avoid this, transfer of middle and junior officers should be limited within a particular district so that they are very thorough with the schemes they are supposed to handle.
	A PHED (Public Health Engineering Department) and water quality manual needs to be created.
	To detect leakages and rectify the same.
	Wastage of chemicals (viz. residual alum) should be ascertained by testing quality of treated water and the same should be recovered from concerned officers.
	To use chlorinators for disinfection of water.
	Maintenance of pipeline can be done properly by attending to customer complaints in time and by mobilising KWA field staff for field report.
	Effective measures may be taken to replace faulty water meters especially in non-domestic and industrial connections and regularly issuing bills to increase revenues.
	To improve the efficiency of pumps and to avoid breakdown, preventative maintenance works such as cleaning, grease etc. should be done periodically.
	Proper maintenance of distribution system is required.
	Adopting recent developments and technology in water supply.
	As per the work load, the staff pattern of each section, sub-division, circle and regional offices are to be reviewed and changed.
	Sufficient staff may be allotted to offices where there is a heavy work load viz. meter readers.
	For revenue collection, efficient staff should be posted.
	There should be separate division for Projects and O&M.
	Operating staff should be posted when a scheme is commissioned. While commissioning a scheme, provision of operating staff is kept and hence the posts should be created.
	For ensuring quality of drinking water, the existing laboratories of treatment plants should be made active by posting requisite manpower. Their services can also be extended to nearby rural water supply schemes.
	Procurement of materials should be done efficiently so that project execution is not delayed due to want of materials.
	Centralised rate contract arrangement for procurement of pipes may be finalised from headquarters. This will help implementing offices in procuring necessary quantity of pipes at times of crisis and disaster without waiting to complete procurement formalities. This procurement system is practiced in Andhra Pradesh. The total expected quantity may be divided amongst manufacturers as per capacity so that supply delays may be minimised, if not eliminated fully.
	Centralised rate contract system should be introduced for the procurement of all types of pipes and unit rate should be fixed so that procurement becomes easier. This in turn would help in minimising the completion time of projects.

Employee Name (Name removed)	Feedback and Suggestions
	AE should keep an up-to-date status of the inventory and take proactive actions.
	Executive Engineer (along with his team) should analyse each urban and rural scheme under his division with respect to Expenditure, Income and Proposal to minimise system losses.
	The field staff should always assess problems related to shortage of water supply due to power failure, pump failure, pipe bursting so that they are better equipped to explain to the consumers when need arises.
	The computerisation programme should be started initially at regional Chief Engineer and circle offices.
	Schemes / projects should be completed as per action plan decided; senior management should interfere effectively in solving hindrances and bottlenecks in implementation of schemes; additional interim sanctions if found necessary should be provided without delay.
	Uninterrupted water supply should be provided to customers.
	Water charges may be linked to quality of water and level of customer service. Periodic revision of tariff based on O&M charges may be adopted.
	The major areas which require immediate attention are: Expenditure reduction, Transmission losses, Revenue collection
MAKING FULL USE OF IT AND IS INVESTMENTS	
	There is an urgent need for computerising KWA offices.
	IT facilities to be set up immediately.
	Implementation of KWA wide computerisation programme to promote paperless offices.
	Full computerisation of revenue collection, billing and meter reading is required. Monitoring the meter reading through computerised data and identifying meters which are not read.
	IT facilities need to be improved and appropriate IT training imparted to KWA staff.
	The computerisation programme should be started initially at regional Chief Engineer and circle offices.
	Full computerisation of revenue collection, billing and meter reading is required. Monitoring the meter reading through computerised data and identifying meters which are not read.
	Migration from a traditional way of managing the business to an IT-based management is essential.
	Each project should have a unique ID so that data processing by computer becomes easy in future.
	Every file should bear a number and the list should be available with EE (Executive Engineer).
	Documentation of all customers to be maintained so as to trace the defaulters quickly.
	On-line payment may be made to suppliers and contractors on successful completion of supply or work to avoid delays.

Employee Name (Name removed)	Feedback and Suggestions
	Proper documentation is not kept for operational schemes. Sometimes newly-posted officers have to spend a lot of time studying the existing schemes and their drawbacks. In order to avoid this, transfer of middle and junior officers should be limited within a particular district so that they are very thorough with the schemes they are supposed to handle.
	The present system of inter-personnel communication involving paper works and files may be replaced by providing e-mail facility to all the staffs from top to bottom of the organisation.
	Implementing proper monitoring system from investigation to final commissioning of schemes.
	Strict financial control should be followed at all levels and in all sectors.
	Proper maintenance of schemes is necessary for improving customer satisfaction.
	Record-keeping and documentation is haphazard and so retrieval of information is difficult.
	Files remain unattended and there is no system to track file movement and make the defaulters accountable.
	In some offices, files are getting either locked or blocked for many days. A system may be established for tracking files to increase efficiency.
	Centralised rate contract system should be introduced for the procurement of all types of pipes and unit rate should be fixed so that procurement becomes easier. This in turn would help in minimising the completion time of projects.

Appendix 10: KWA Reform & Improvement Plan – Implementation Details

Improvement Area	Detailed Plan of Action	Resource	Timeline																								
			Apr '06	May '06	Jun '06	July '06	Aug '06	Sep '06	Oct '06	Nov '06	Dec '06	Jan '07	Feb '07	Mar '07	Apr '07	May '07	Jun '07	July '07	Aug '07	Sep '07	Oct '07	Nov '07	Dec '07	Jan '08	Feb '08	Mar '08
Organisational Restructuring Corporate Plan Performance Management System (PMS) Employee Handbook KWA Staff Database System	Preparation of draft proposal	CMT																									
	Presentation of proposal to KWA senior management team and KWA board (if felt necessary by KWA senior management team)	CMT / Sr Management																									
	Collation of comments / suggestions received from KWA and preparation of final proposal	CMT																									
	Submission of final proposal to KWA for approval	CMT / KWA																									
	Bid documentation	CMT																									
	Tendering and evaluation process	CMT / KWA																									
	Awarding of contract	CMT / KWA																									
	Execution of contract	CMT / KWA																									
Application and Improvement of KWA Customer Database System	Preparation of draft proposal	CMT																									
	Presentation of proposal to KWA senior management team and KWA board (if felt necessary by KWA senior management team)	CMT / Sr Management																									
	Collation of comments / suggestions received from KWA and preparation of final proposal	CMT																									
	Submission of final proposal to KWA for approval	CMT / KWA																									
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Improvement Area	Detailed Plan of Action	Resource	Timeline																								
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Assessing the current IT skills of KWA Staff	Communication from MD, KWA to division offices, Trivandrum	CMT																									
	Generation of list of respondents for questionnaire based survey	EEs, Division Offices, Trivandrum																									
	Spot survey at division offices	CMT																									
	Analysis and draft report writing	CMT / Outsource																									
	Aptitude test on computer	CMT																									
	Analysis and final report writing	CMT																									
Software Implementation for Water Quality Reporting and Treatment Plant Evaluation	2/3 meetings with Water Quality Surveillance Wing at Trivandrum to understand the functional requirements	CMT																									
	Preparation of Software Requirement Specification (SRS)	CMT																									
	Software development	CMT																									
	Installation and training	CMT																									
Identification of Key Large Customers > 100 KL/month) Meter Checking Taking Action	Listing of key customers with relevant details	RMC / CMT / EEs																									
	Identification of Divisions where the key customers are located	RMC / CMT / EEs																									
	Formation of 'Task Force' in each division	CMT / EEs / Sr Management (MD / TM / AM)																									
	'Task Force' completes field work and submits report to CMT	Task Force																									
	CMT compiles report and makes final recommendation	CMT																									

Improvement Area	Detailed Plan of Action	Resource	Timeline																								
			Apr '06	May '06	Jun '06	July '06	Aug '06	Sep '06	Oct '06	Nov '06	Dec '06	Jan '07	Feb '07	Mar '07	Apr '07	May '07	Jun '07	July '07	Aug '07	Sep '07	Oct '07	Nov '07	Dec '07	Jan '08	Feb '08	Mar '08
Examine Current Metering, Billing and Revenue Collection Mechanisms and draw up Agreed Strategy and Action Plan	Formation of 'Task Force'	CMT / Sr Management (MD / TM / AM)																									
	'Task Force' and CMT works jointly	Task Force / CMT																									
	Presentation of findings to Senior Management Team	Task Force / CMT																									
	Finalise Agreed Strategy and Action / Implementation Plan	Task Force / CMT																									
Streamlining Decision-Making and Delegation of Powers with introduction of IT Systems	Formation of 'Task Force'	CMT / Sr Management (MD / TM / AM)																									
	'Task Force' and CMT works jointly	Task Force / CMT																									
	Presentation of findings to Senior Management Team	Task Force / CMT																									
	Finalise Agreed Strategy and Action / Implementation Plan	Task Force / CMT																									
Separation of Projects and O&M	Formation of 'Task Force'	CMT / Sr Management (MD / TM / AM)																									
	'Task Force' and CMT works jointly	Task Force / CMT																									
	Presentation of findings to Senior Management Team	Task Force / CMT																									

Improvement Area	Detailed Plan of Action	Resource	Timeline																								
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Non-Revenue Water Reduction Programme – Network Management and Control	Preparation of draft proposal	CMT																								
	Presentation of proposal to KWA senior management team and KWA board (if felt necessary by KWA senior management team)	CMT / Sr Management																								
	Collation of comments / suggestions received from KWA and preparation of final proposal	CMT																								
	Submission of final proposal to KWA for approval	CMT / KWA																								
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	Tendering and evaluation process	CMT / KWA																								
	Awarding of contract	CMT / KWA																								
	Execution of contract	CMT / KWA																								
Asset Register and Management programme	Preparation of draft proposal	CMT																								
	Presentation of proposal to KWA senior management team and KWA board (if felt necessary by KWA senior management team)	CMT / Sr Management																								
	Collation of comments / suggestions received from KWA and preparation of final proposal	CMT																								
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Tariff Study	Preparation of draft proposal	CMT																									
	Presentation of proposal to KWA senior management team and KWA board (if felt necessary by KWA senior management team)	CMT / Sr Management																									
	Collation of comments / suggestions received from KWA and preparation of final proposal	CMT																									
	Submission of final proposal to KWA for approval	CMT / KWA																									
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Website – Publishing Vision, Mission and Strategic Intent	Presentation of proposal to KWA senior management team and KWA board (if felt necessary by KWA senior management team)	CMT / Sr Management																									
	Collation of comments / suggestions received from KWA and preparation of final proposal	CMT																									
	Submission of final proposal to KWA for approval	CMT / KWA																									
	Bid documentation	CMT																									
	Tendering and evaluation process	CMT / KWA																									
	Awarding of contract	CMT / KWA																									
	Execution of contract	CMT / KWA																									
	Refining the statements	CMT																									
	Handing over soft copy of statements to DBA, KWA	CMT																									
	Uploading the statements to current KWA website through website AMC contractor	DBA																									